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Prevalence of exclusive breastfeeding in Iran: Systematic review and meta-analysis

Mehdi Ranjbaran[1*], Mahmoud Reza Nakhaei[2], Mina Chizary[3], Mohsen Shamsi[4]
[1]Epidemiology Dept., Arak University of Medical Sciences, Arak, I.R. Iran; [2]Nutrition Dept., Arak University of Medical Sciences, Arak, I.R. Iran; [3]Midwifery Dept., Arak University of Medical Sciences, Arak, I.R. Iran; [4]Health Education Dept., Arak University of Medical Sciences, Arak, I.R. Iran.
Received: 11/Nov/2015 Accepted: 10/Jan/2016

ABSTRACT

Background and aims: The World Health Organization and United Nations Children's Fund (UNICEF) recommended executive breastfeeding for 6 months after birth. The purpose of this study was to determine the prevalence of executive breastfeeding in Iran by a meta-analysis study to be used by policy-makers in order to health programmer plan in this field.
Methods: In this meta-analysis study, the databases of ISI Web of Knowledge, PubMed, Science Direct, Scopus, Google Scholar and domestic databases were searched between January 2007 and March 2015. Between the studies with regard to the inclusion and exclusion criteria, 16 studies were selected. Data were analyzed using Stata 11 software.
Results: Sever heterogeneity was observed among reported prevalence based on the results of Chi-square based on Q test and I^2 statistics (Q=6132.55, P<0.001 and I^2=99.8 %) and consequently, random effect model was used for themeta-analysis. The overall estimated prevalence of exclusive breastfeeding in Iran was 49.1% (95% CI: 33.4-64.9).
Conclusions: In the present study, it was summarized the results of previous studies and showed that the prevalence of exclusive breastfeeding in Iran has been increased and currently is in a satisfactory level. The ongoing national programs for preservation and promoting of exclusive breastfeeding should continue.

Keywords: Breastfeeding, Exclusive breastfeeding, Epidemiology, Iran.

Review article

INTRODUCTION

Breastfeeding is the normal way of providing nutrition in newborn infant for healthy growth and development.[1,2] There is a strong evidence for short and long-term benefits of breastfeeding for both the baby and the mother.[3,4] Breastfeeding can decrease morbidity and mortality from intestinal and respiratory infectious diseases in childhood.[5,6] It also can reduce the frequency of chronic diseases that appear later during adult life.[7] Breastfeeding helps weight loss and prevention of pregnancy in

[*]**Corresponding author:** Mehdi Ranjbaran, Epidemiology Dept., Arak University of Medical Sciences, Arak, I.R. Iran, Tel: 00988633686446, E-mail: ranjbaran@arakmu.ac.ir

the mothers.[6] Duration and exclusivity of breastfeeding increase protective effect of breast milk.[8] The World Health Organization(WHO) and United Nations Children's Fund (UNICEF) recommended executive program of breastfeeding for 6 months (180 days) after the birth. Exclusive breastfeeding is defined as providing only breast milk and no other liquids or solids, with the exception of oral rehydration solution, drops or syrups consisting of vitamins, minerals supplements or medicines to the baby from the birth.[9] According to the declaration of WHO, there are a few women who cannot feed their children, whereas about 98% of mothers have the ability to breastfeed for 6 months exclusively.[10]

Some factors such as maternal age, maternal education and working status, ethnic background, social class, attitudes of mothers regarding breastfeeding, mother-infant bonding, religion, appropriate suckling technique, nipple problems and family support influencing the duration of breastfeeding and executive breastfeeding.[7,8]

There are some studies about exclusive breastfeeding at national, provincial and municipal level in Iran that their results are slightly different from each other.[11] The latest study about exclusive breastfeeding in the national level was conducted in 2005-2006.[12] Considering the importance of exclusive breastfeeding, knowledge of the latest statistics in a country can be helpful in designing programs and guidelines for its preservation and promotion. On the other hand, due to multiplicity of studies, and the lack of a comprehensive study on the national level after the mentioned time, the need for an accurate and reliable result in this area seems essential. The purpose of this study was to determine the prevalence of executive breastfeeding in Iran by a meta-analysis study to be used by policy-makers in order to health programmer plan in this field.

METHODS

This meta-analysis study reviewed the prevalence of executive program of breastfeeding in Iran. The international databases including ISI Web of Knowledge, PubMed, Science Direct, Scopus, Google Scholar and main domestic databases including Iranmedex, Scientific Information Database (SID), Magiran and Medlib were systematically searched between 2007-2015. The search was performed with all possible combinations of key words; Breastfeeding, Exclusive Breastfeeding and Iran. In English language databases, the search strategy was (Breastfeeding or "Exclusive Breastfeeding") and (Iran). The review is conducted based on the PRISMA guidelines.[13] The quality assessment of eligible papers has been followed independently by two researchers using the Strengthening of the Reporting of Observational Studies in Epidemiology (STROBE) Statement, and probable disagreement between them resolved through discussion with a third researcher.[14]

Inclusion and exclusion criteria: all available cross-sectional studies or surveys in English and Persian language that estimated the prevalence of executive breastfeeding in each province of Iran were included. Studies with duplicate citation, studies that estimated the prevalence of executive breastfeeding in a small sample (less than 100 individuals) and Studies in special populations such as employed women were excluded from this review.

The main issues in descriptive studies such as the sampling method, and the validity of measurements were evaluated.

The quality assessment of eligible papers has been followed independently by 2 researchers and probable disagreement between them resolved through discussion with a third consultant.

Data analysis was carried out by the Stata 11 software. Standard error in each study was calculated using the binomial distribution formula. The presence of heterogeneity between studies was evaluated by the Chi-square based on Q test and I^2 statistics with significant level of <0.1. Based on the rejection of homogeneity hypothesis, the random effect model was used for estimation of pooled prevalence. Also, univariate and multivariate meta-regression approach were employed for examining the effects of potential factors contributing to the heterogeneity in the prevalence of executive breastfeeding among the selected studies.

The research proposal was approved by Deputy of Research of Arak University of Medical Sciences with project number; 2219 and Ethics Committee with ethics number; IR.ARAKMU.REC.1394.75.

RESULTS

The first step of search in the mentioned databases yielded 399 publications. Removing the duplicate studies and considering the inclusion and exclusion criteria, 383 studies were excluded. Finilay, 16 studies were selected for the meta-analysis (Table 1, Figure 1). The time study was from 2007 to 2014.The total sample size in the 15 study was 9979 people. The highest prevalence of exclusive breastfeeding was seen in Sari equal to 86.2% and the lowest prevalence was 1.6% in Kerman.

Table 1: The Characteristics of studies were included in the meta-analysis of exclusive breastfeeding prevalence in Iran

Reference	Year	Location	Sample size (n)	Prevalence (%)
Mirahmadizadeh A et al[15]	2010	Fars	751	50.7
Mohammad Beigi A et al[16]	2007	Arak	352	41.5
Torabi S et al[17]	2002-2003	Jahrom	435	55.4
Nasserpour F et al[18]	2010	Omidieh	400	61.6
Mohsenzadeh A et al[19]	2006	Khorramabad	340	79.1
Morowatisharifabad M et al[20]	2010	Ardakan	413	6.1
Ghanbarnejad A et al[21]	2009-2012	Bandar Abbas	800	9.43
Vafaee A et al[22]	2007	Mashhad	1450	56.4
Hamidi M et al[23]	2007	Charmahal and Bakhtiari	411	44.5
Almasi H et al[24]	2006	Kashan	391	33.1
Veghari GH, Rahmati R[25]	2011	Golestan	2520	66.4
Abdollahiet al[26]	2012	Sari	400	86.2
Mehrparvar S, Varzandeh M[27]	2008-2009	Kerman	320	1.6
Noughabi et al[28]	2011	Tehran	538	46.5
DaliliH et al[29]	2011	Tehran	175	31.17
Ranjbaran et al[30]	2014	Arak	283	70.7

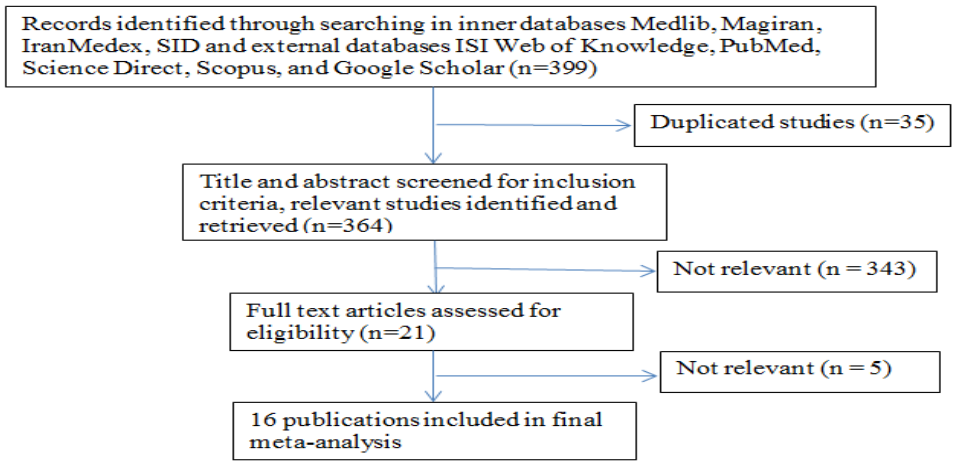

Figure 1: Flow diagram showing the different phases involved in searching for relevant publications

Sever heterogeneity was observed among reported prevalence based on the results of Chi-square based on Q test and I^2 statistics (Q=6132.55, P-value<0.001 and I^2=99.8%) and consequently, random effect model was used for the meta-analysis. The forest plot of eligible articles for estimating prevalence of exclusive breastfeeding in Iran is presented in Figure 2. In this plot prevalence, 95% confidence interval (95% CI) and the weight assigned to each study is reported. The size of each square represents the weight of each study and the lines around it were 95% CI. Based on the random effect model, the overall estimated prevalence of exclusive breastfeeding in Iran was 49.1% (95% CI: 33.4-64.9).

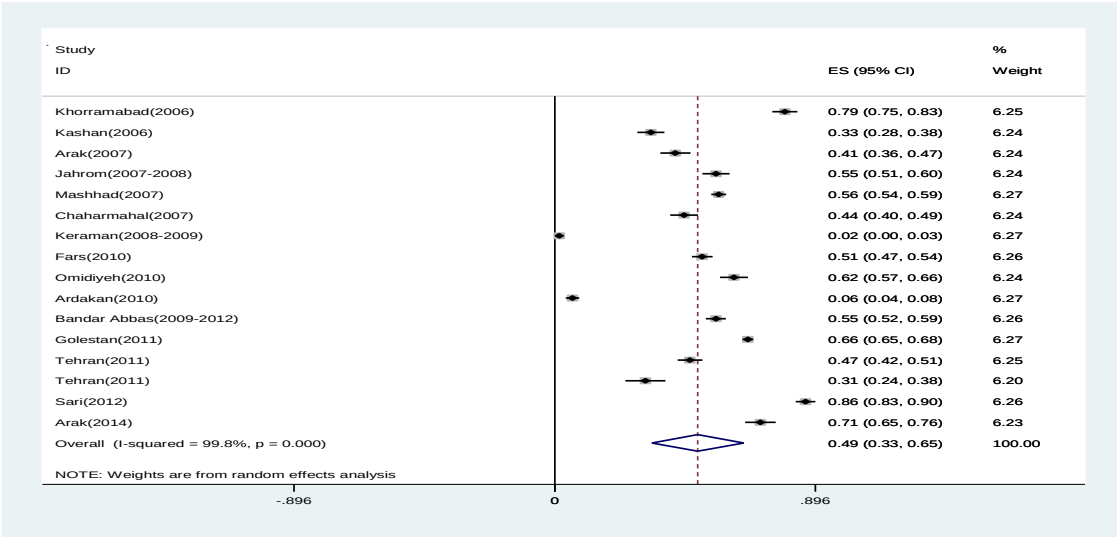

Figure 2: Forest plot of prevalence of exclusive breastfeeding in Iran using random effect model

Meta-regression was used to study the effects of suspected factors in heterogeneity; including sample size and year of study (Figure 3 and 4). Results show that, by increasing the sample size, the reported prevalence of exclusive breastfeeding in studies also was increasing but not statistically significant (P=0.47).

Also, the prevalence of exclusive breastfeeding was decreasing over time but not statistically significant (P=0.51).

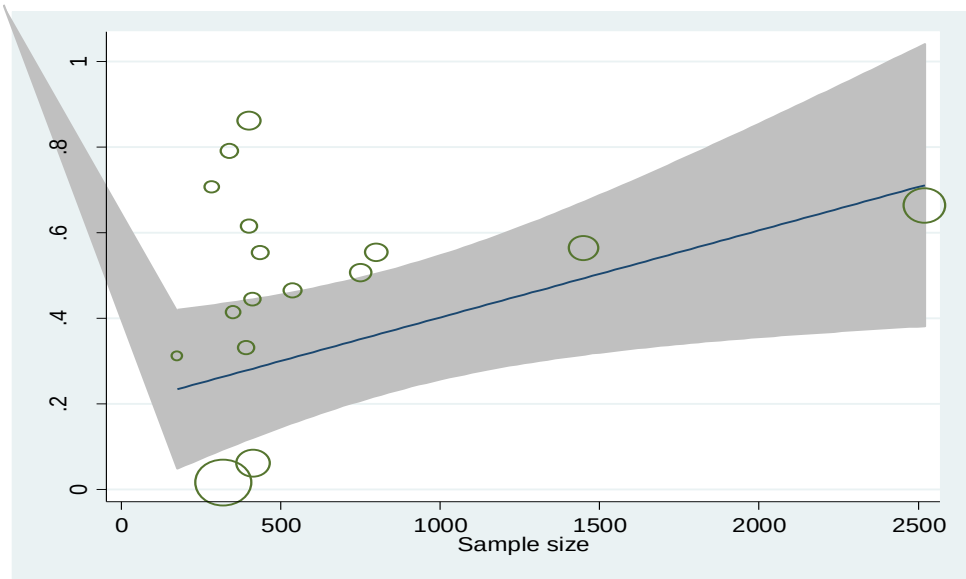

Figure 3: Meta-regression graph of exclusive breastfeeding prevalence based on the sample size of study

Figure 4: Meta-regression graph of exclusive breastfeeding prevalence based on the year of study

DISCUSSION

In this meta-analysis based on the results of 16 reviewed studies, the overall prevalence of exclusive breastfeeding estimated to be 49.1%. However, the prevalence of exclusive breastfeeding in our meta-analysis varied from 1.6% to 86.2%. The lowest prevalence was found in Mehrparvar and Varzandeh study in Kerman; which most important factor for early interruption of exclusive breastfeeding in this study was mother's wrong belief about adequacy of breast milk.[27] In contrast, the highest prevalence of exclusive breastfeeding was reported in the study of Abdollahi et al. in Sari. According to the researchers commenting, high prevalence in this study has been attributed to the role of family health programs in this region.[26] It can be said that this variation in more than 75 million population of Iran who are living in 31 provinces with different socio economic, life styles and health statues is inevitable.

In present study, the prevalence of exclusive breastfeeding showed an improvement compared to the study conducted in 2006 in Iran which the prevalence at 6 months of age in national level was 27.7%.[12] The differences between the two studies might be attributed to variations in study designs, sample selection and variable definitions since that retrospective study was conducted based on data from 63,071 infants less than 24 months of age in all the 30 urban and rural provinces of Iran but present study is meta-analysis based on the published articles. Also differences between the two studies might be attributed to an actual increase in the prevalence of exclusive breastfeeding since the Ministry of Health and Breastfeeding Promotion Society by producing booklets, pamphlets, breastfeeding journal, CD, workshops and websites trying to improve the nutritional status.[12] The results of meta-regression for the years of studies somewhat confirm this explanation, because it showed slightly improvements but not significant in situation of exclusive breastfeeding from 2006 to 2014.

At the international level, although data from 64 developing countries in the world showed the improvements in rate of exclusive breastfeeding for the first 6 months of life between 1996 and 2006 from 33% to 37%, but based on the report of world health organization in 2009, only 34.8% of infant was exclusively breasted for 6 months after the birth, and some others receiving food or fluid in the early months.[9,31] Comparing with the total level in the world and the east Mediterranean region, the exclusive breastfeeding percentage based on the results of this study is satisfactory.[10] The high prevalence of exclusive breastfeeding in Iran may be due to the legislation which is derived from the Quran that says the mothers shall suckle their babies for 24 months, or because of mother and father’s educating programs by Iranian government about breastfeeding benefits and establishing breastfeeding facilities.[4] Based on the results of studies, exclusive breastfeeding was 23% among Canadian Inuit and 35% at Peru.[8,32] In some developed countries such as Norway, Sweden and Finland prevalence of exclusive breastfeeding has risen from 30% to 90%.[10]

CONCLUSION

The prevalence of exclusive breastfeeding in Iran has been increased and currently is in a satisfactory level. The ongoing national programs for preservation and promoting of exclusive breastfeeding should continue.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ACKNOWLEDGEMENT

The authors wish to acknowledge the Deputy of Research of Arak University of Medical Sciences for approval and financial support of this research project.

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How to cite the article: Ranjbaran M, Nakhaei MR, Chizary M, Shamsi M. Prevalence of exclusive breastfeeding in Iran: Systematic review and meta-analysis. Int J Epidemiol Res. 2016; 3(3): 294-301.