

## Breastfeeding Among Iraqi Patients With Rheumatoid Arthritis: An Observational Descriptive Cross Sectional Study

Faiq I.Gorial<sup>1\*</sup>,Sura Kadhim Ali<sup>2</sup> ,Sura Adil Mutashar <sup>2</sup>,  
Shahad Ahmed Mahdi <sup>2</sup>

1 \* Rheumatology Unit, Department Of Medicine, College Of Medicine, University Of Baghdad, Baghdad, Iraq

2 Medical Students, College Of Medicine, University Of Baghdad, Baghdad, Iraq

Corrsponding Author: Faiq I.Gorial<sup>1\*</sup>

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### **Abstract:**

**Objective:** To assess prevalence of breastfeeding in a sample of Iraqi patients with rheumatoid arthritis (RA).

**Patients and methods:** A descriptive cross sectional study was conducted on 150 female patients diagnosed with RA according to 2010 ACR /EULAR criteria. Age, weight, height, body mass index (BMI), breast feeding status, smoking history, and using of oral contraceptive pills were recorded.

**Result:** Prevalence of patients with breast feeding history was 116 (77 %) and those not breastfed was 34(23%). There was no significant association between breast feeding and the activity of RA ( $p>0.05$ ). However, we found a dose response relationship between an increasing duration of breast feeding and higher risk of having active RA (adjusted odds ratio [OR 2.0], 95% confidence interval 0.9 – 4.5). There was no significant association between breast feeding and other variable except for parity ( $p<0.005$ ).

**Conclusion:** Prevalence of breast fed women in RA was high (77%). There was positive association between duration of breast feeding and activity of RA patients and increase the odd of having active RA, but it was statistically not significant. There was positive significant association between parity and breast fed women.

**Keywords:** Rheumatoid arthritis, breast feeding, disease activity.

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### **I. Introduction**

Rheumatoid arthritis is a chronic inflammatory multisystem disease characterized by joint destruction and it is recognized as a major cause of morbidity and disability. The epidemiological studies have suggested that hormonal factors are important [1]. RA is more common in women than in men, especially before the menopause [2]. The disease activity tends to diminish during pregnancy, but often flares up again in the post-partum period [3, 4]. The relationship between breastfeeding and the risk of having RA in the future has also been examined and data are conflicting. While large population-based cohort studies have found that breastfeeding is associated with a lower risk of [5] and mortality from RA [6], other case-control studies have suggested that breastfeeding increases risk, including the risk of severe disease [7, 8]. The post-partum flare of RA has also been linked to breastfeeding [10] and is thought to be mediated through increased concentration of prolactin [7]. Furthermore, it is unclear from previous studies whether it is breastfeeding or childbirth and pregnancy, per se, that influence the risk of RA. Apart from being inconclusive, these previous studies were based on populations in developed countries in the West, where patterns of breastfeeding and OC use differ from those in many developing countries.

In Iraq prevalence of early initiation of breastfeeding is (43%), exclusive breastfeeding under 6 months (20%) and breastfeeding at 2 years (23%) [11]. Up to the best of our knowledge there was no previous study that assessed the relation of both breast feeding and RA in Iraq. This study was designed to assess prevalence of breastfeeding in a sample of Iraqi patients with RA.

### **II. Patients And Methods**

#### **Study design**

This observational descriptive cross-sectional study was carried out from 1<sup>st</sup> march to 1<sup>st</sup> October 2016 in Baghdad Teaching Hospital / Rheumatology clinic. Data collection were carried out for 4 hours per day for 12 days.

**Study population**

A total of 150 consecutive females who had RA were selected and included in the study and. Inclusion criteria were: Females above age of 20 years old diagnosed with RA by rheumatologist according to 2010 ACR /EULAR criteria [12]. Patients who had other overlapping inflammatory arthritis or comorbid diseases (like endocrine diseases or malignancy) that may cause arthritis were excluded from the study.

**Data collection and evaluation**

The data were collected using structured questionnaire form regarding age, weight, height, BMI, breast feeding status, smoking status and using of oral contraceptive pills. The questionnaire form was filled by personal interview with each patient. The purpose of the study was explained to each participant prior to interview and all the patients accepted to participate in the study. Ethical approval was taken from Medical department, College of medicine, University of Baghdad.

**Statistical Analysis**

Anderson darling test was used to assess the distribution of continuous data. Age and BMI follow normal distribution while the rest of the variables did not follow normal distribution.

Mean and standard deviation was used for normally distributed data, median and interquartile range used for none normally distributed data. T test used to compare mean between two group in normally distributed data, while Mann Whitney U test for none parametric data Chi square test used for categorical variables to test the association, binary logistic regression analysis used to obtain the odd ratio that describe the relationship between dichotomous variables, and multivariate logistic regression was used to see if significant variables were independent P<0.05 was considered statistically significant. SPSS version 21 software package and Minitab 17 software package were used for all the statistical analysis

**III. Results**

The baseline characteristics of RA patients are shown in table1. A total number of 150 patients included in the study. An 18 patients were excluded because of having another inflammatory arthritis (Systemic lupus erythematosus=10) and comorbid chronic disease (Diabetes mellitus =8). The mean age of RA patients was 48.13 ± 11.88 year. The mean BMI was 28.76 ± 5.39 kg/m<sup>2</sup>. The median duration of RA with interquartile range (IQR) was 8 (4 – 15.25). The median (IQR) of the duration of breast feeding was 3.25 (0.17 – 8.25). The median (IQR) of the number of parity was 3 (1 – 7). The number (%) of smokers was 12 (8%). The number of patients with oral contraceptive history was 55 (36.7%) and those who had breastfeeding history 116(77%)

Prevalence of patients with breast feeding history was 116 (77 %) as shown in Figure (1). Patients who were breastfed and had active RA were 74.1% while those who had inactive RA the prevalence of BF was 25.9 % . as shown in Figure (2).

Regarding the relationship between duration of breastfeeding and RA activity. There was no significant association between them (p>0.05) as shown in Table (2).

In Table (3): multivariate logistic regression analysis was used to assess the relationship between BF and various baseline characteristics of patients. Only parity showed significant association with BF (p<0.05).

**Table 1:** Baseline characteristics of RA patients

Variables	Values
Number	150
Age (mean ± SD) years	48.13 ± 11.88
BMI (mean ± SD) kg/m <sup>2</sup>	28.76 ± 5.39
DORA (median, IQR)	8 (4 – 15.25)
DOBF (median, IQR)	3.25 (0.17 – 8.25)
Parity (median, IQR)	3 (1 – 7)
Smoking (present); no (%)	12 (8%)
OC Hx (present); no (%)	55 (36.7%)
BF Hx (present); no (%)	116 (77 %)
RA, rheumatoid arthritis; BMI: Body mass index , DORA: Duration of rheumatoid arthritis; DOBF: Duration of breast feeding , OV Hx: Oral contraceptive history; BF Hx: Breast feeding history .	

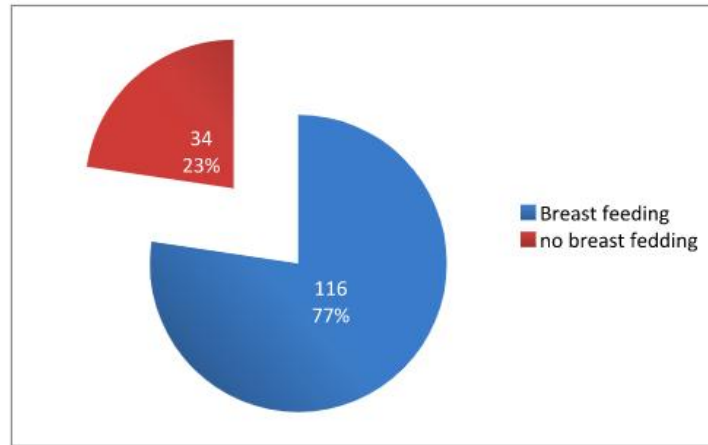


Figure 1: Prevalence of breast feeding in RA patients.

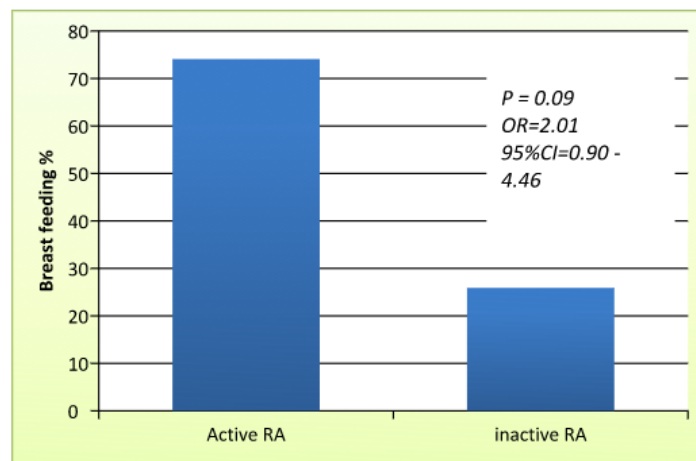


Figure 2: Prevalence breast feeding in both active and inactive RA.

Table 2: Relationship between RA activity and duration of breast feeding

Variable	B	OR	95% CI	P-value
DOBF	0.037	2.008	0.902 – 4.464	0.088

B, regression coefficient; OR: odd ratio , DOBF: duration of breast feeding ; CI, confidence interval

Table 3: Relationship between breast feeding and various variables

Variables	B	OR	95%CI		P value
			Lower	Higher	
Age	0.011	1.011	.939	1.089	0.769
BMI	-0.075	0.928	.766	1.124	0.443
DORA	-0.017	0.983	.892	1.085	0.738
Activity	0.809	2.245	.414	12.164	0.348
Smoking history	-1.111	0.329	.010	11.205	0.537
OC history	-1.284	0.277	.019	3.999	0.346
Parity	2.333	10.313	3.683	28.875	<0.001

OR: odd ratio; BMI, Body mass index; DORA, Duration of rheumatoid arthritis; DOBF, Duration of breast feeding; OC Hx, Oral contraceptive history; BF Hx, Breast feeding history .

#### IV. Discussion

Up to our knowledge this study is the first study that assessed breast feeding among a sample of Iraqi patients with RA. It showed that prevalence of patients with breast feeding history in RA patients was 77%. There is no clear data for prevalence of breastfeeding among patient with RA. However, the current study confirmed some of previous studies which reported a high prevalence of breast feeding in RA. Pikwer et al reported that breast fed women in RA were 68% [13]. Brennan P and Silman A evaluated Breast-feeding and the onset of RA and found that 81% of women with RA had breast fed history [14]. A recent study by Adab P et al reported a higher result of breast fed woman in RA which was 95.9% [15]

There was no significant association between breast feeding and the activity of RA ( $p > 0.05$ ). However, we found a dose response relationship between an increasing duration of breast feeding and higher risk of having active

RA (adjusted odds ratio [OR 2.0], 95% confidence interval 0.9 – 4.5) in our sample that had been taken in Baghdad. In number of studies that measured the effect of pregnancy and lactation on the activity of RA showed that during pregnancy the severity of the disease decrease during pregnancy while it relapse during postpartum period [16] . It has been recognized that postpartum flares of the disease tend to be more pronounced in women who breast feed [17]. The explanation for the possible effect of breast feeding on the development and course of RA might be due to increase in serum concentrations of prolactin which have an immune-stimulant effect in addition to its role in milk production during lactation. Increased serum concentration of prolactin was associated with increased activity of RA [18].. Another evidence is that studies have shown decreasing prolactin production to be beneficial in animal models of autoimmune disease. [19]. In RA, secretion of prolactin was shown to be upregulated, and excessively increased in case of stress During pregnancy, immunosuppressive factors might explain the improvement in RA[ 20].

The current study showed positive significant correlation between parity and breast feeding. We could not find a study to compare with it. The main limitation of this study was that most of the patients did not remember the exact data, so it is important to consider a recall bias. In addition, it was a cross sectional study so we could not assess the cause and effect relationship between variables. In spite of these limitations, this study was the first in Iraq to assess breast feeding in RA patients with strict inclusions and exclusions criteria.

In conclusions: Prevalence of breast fed women in RA was high (77%).There was positive association between duration of breast feeding and activity of RA patients and increase the odd of having active RA, but it was statistically not significant. There was positive significant association between parity and breast fed women. These findings suggest screening of breast fed women for RA to get early diagnosis of RA and early treatment and subsequently prevention of complications. A case control study with longer duration and a larger group population to measure the effect of breast feeding on the development of RA might be needed.

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