Epidemiology of Infertility In IRAN

M.E.PARSANEZHAD M.D
Distinguished Professor & Member of Division
Infertility & Reproductive Medicine
GYN Endoscopy Division
Department of GYN & OB
Shiraz University of Medical Sciences
SHIRAZ FEB 2024
E.Mail: parsameb@gmail.com

Epidemiological national data and knowledge about the geographic differences can help the organizations and policy –makers to understand the …

….treads of public health in each area,

…. to advance the health preventive programs

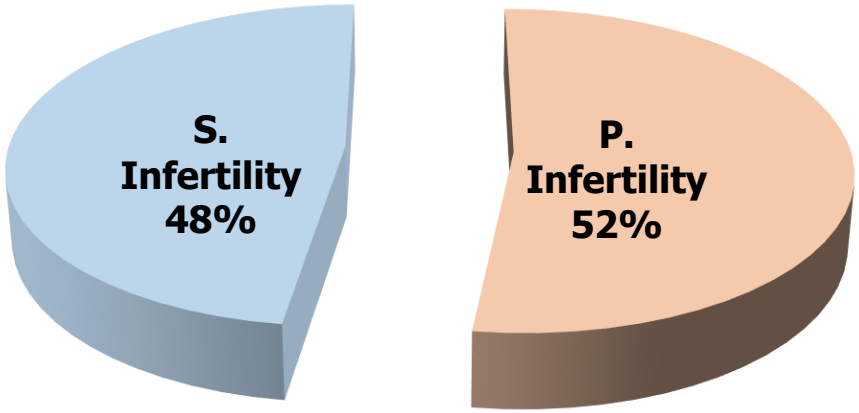
……and to program for allocation of resources.

EPIDEMIOLOGY OF INFERTILITY IN IRAN

Epidemiological study of infertility might assist public health policy-makers in making efficient decisions by estimating the potential users of health services for infertility work up or treatment.

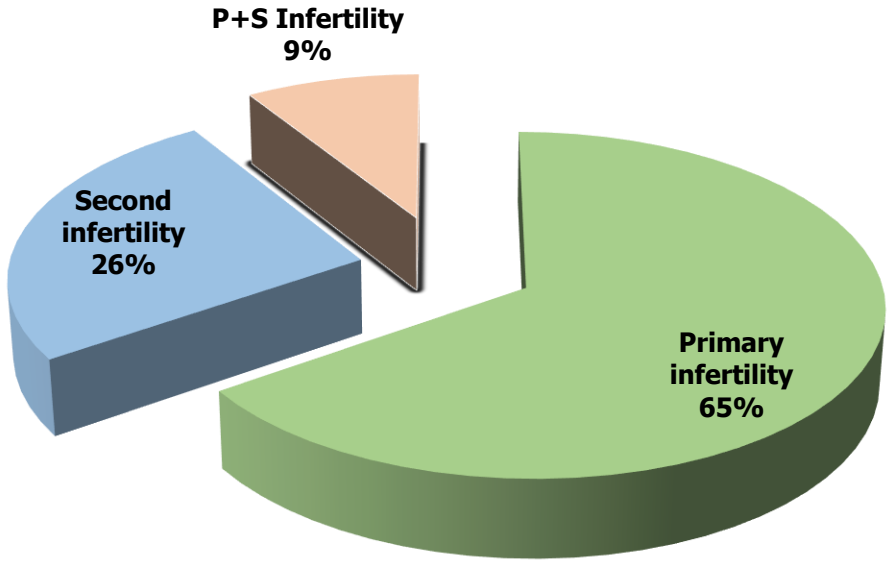
Epidemiology Of Infertility In Iran

Cases	%
Total	100
Infertile couples	11.12
P. Infertility	52.2
S. Infertility	47.8



Epidemiology Of Infertility In Iran

Type of infertility	%
Primary Infertility	*65.4*
Second Infertility	*25.6*
P+S Infertility	*9*



EPIDEMIOLOGY OF INFERTILITY IN IRAN

Duration	%
1- 4	45.8
5 - 8	29.6
9 - 12	15.1
13 - 16	7.2
17 - 20	1.64
21 - 24	0.5

Parsanezhad et al., J Womens Health, Issues Care 2013, 2:6
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Research Article

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Epidemiology and Etiology of Infertility in Iran, Systematic Review and Meta-Analysis

Mohammad Ebrahim Parsanezhad[1], Bahia Namavar Jahromi[2*], Najaf Zare[3], Pegah Keramati[4], Azadeh Khalili[4] and Maryam Parsa-Nezhad[4]

pregnancy [1]. Cycle fecundability is the probability that a cycle will result in pregnancy that is about 20% in normal individuals. Subfertility is defined when pregnancy occurs after 12 months of trying to conceive [2]. Evidence shows that the incidence of infertility has not changed during the past thirty years and is even declining in some populations [3]. However Total Fertility Rate (TFR) that is the average number of children born to a woman in her lifetime is decreasing in the world. The decline in TFR has several causes such as; changing values, delayed child bearing, and successful family

The OBJECTIVE of this study was to review the existing literature to answer these questions:

1) What is the prevalence of infertility in Iranian population?

2) What are the etiologic factors of infertility in Iran?

Data Sources and Method of Selection

- internet based search through PubMed, Google Scholar, Iran Medex, magiran and SID
- The search terms including: “Iran” and “infertility” and “epidemiology” or “etiology” or “cause” and Persian published studies that were not accessible by using the ordinary electronic searching methods that were added.
- The samples should be representative of the condition in the general population in Iran
- The epidemiological studies that were performed by random cluster sampling of the targeted regions and face to face interviews at home.
- The search was restricted to the studies that were published in peer reviewed English or Persian journals.

Data Analysis

- Meta-analysis was performed to integrate the findings of the separate studies.
- The pooled estimates accompanied by 95% C.I were calculated by DerSimon and Laired random effect model.

Results

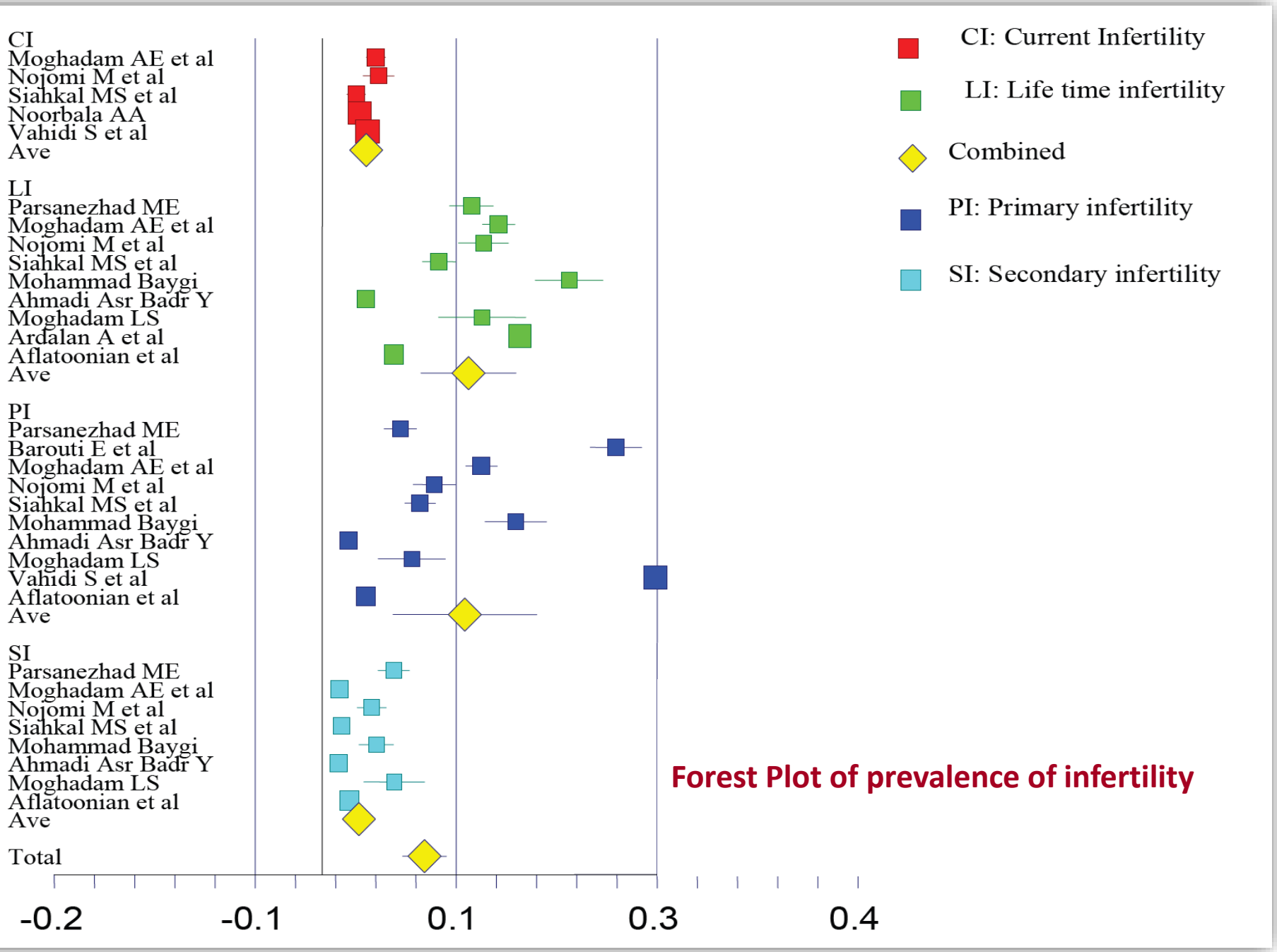
There were **twelve** studies that had been performed by Random Cluster Sampling and Home-interviews that were included for epidemiologic analysis and estimation of the prevalence rate of infertility and classification of primary and secondary infertility in Iranian population

Table 1: Studies included for calculation of the prevalence rate of infertility in Iran.

Authors	Study-Year	Study-region	Sample-size	lifetime infertility n(%)	Primary infertility	Secondary infertility	Current infertility
Parsanezhad ME [9]	1993	Shiraz	1430	159 (11.1)	83(5.8)	76(5.3)	
Barouti E. et al. [10]	1997	Tehran	1784		391(21.9)		
Moghadam AE et al. [11]	1999	Mazandaran	2953	389(13.2)	351(11.9)	38(1.3)	118(4.0)
Nojomi M et al. [12]	2000	Tehran-west	1174	141(12.0)	98(8.3)	43(3.7)	49(4.2)
Siahkal MS et al. [13]	2001	Tehran	1987	173(8.7)	145(7.3)	28(1.4)	50(2.5)
Noorbala AA [14]	2001	Iran	10418				292(2.8)
Mohammad baygi R et al. [15]	2002	Sanandaj	902	166(18.4)	130(14.4)	36(4.0)	
Ahmadi Asr Badr Y et al. [16]	2004	Tabriz	3183	104(3.3)	62(2.0)	39(1.2)	
Moghadam LS [17]	2004	Gonabad	380	45(11.9)	25(6.6)	20(5.4)	
Vahidi S et al. [18]	2004-5	Iran	11370		2829(24.9)		385(3.4)
Ardalan A et al. [19]	2004-5	Iran	10783	1592(14.8)			
Aflatoonian et al. [20]	2004-5	Yazd	5200	277(5.3)	170(3.3)	107(2.0)	
Total Average (%) (95% C.I)				10.9 (7.4-14.4)	10.6 (5.3-16.0)	2.7 (1.9-3.5)	3.3 (2.7-3.8)
Cochran's Q				858.4 (<0.001)	2884.8 (<0.001)	85.8 (<0.001)	20.4 (<0.001)
I^2 statistic				99.1	99.7	91.8	80.4

Study	Year	Center	Total infertile	Primary infertility	Secondary infertility	Male factor n (%)	Female factor n(%)	Both factors n(%)	Unexplained n(%)
Moini A et al. [21]	1990-5	Tehran-Royan Institute	4360	3719(85.3)	641(14.7)	2206(50.6)	2001(45.9)	-	153(3.5)
Parsanezhad et al. [9]	1991-3	Shiraz- Clinics	693	453(65.4)	240(34.6)	140(20.2)	464(67.0)	-	89(12.8)
Esmailzadeh S et al. [22]	1996-8	Babol –Fatematazahra	2169	1653(76.2)	516(23.8)	755(34.8)	676(33.1)	475(23.3)	136(6.7)
Bakhtiari A [23]	1999	Babol –Fatematazahra	920	707(76.8)	213(23.2)	208(22.6)	398(43.3)	250(27.2)	64(7.0)
Kamali M et al. [24]	1995-2001	Tehran-Royan institute	2492	2245(90.1)	247(9.9)	1258(50.5)	713(28.6)	289(11.6)	232(9.3)
Aflatoonian A, et al. [20]	2004-5	Yazd- Clinics	174	116(66.7)	58(33.3)	44(25.3)	100(57.5)	14(8.0)	16(9.2)
Karimpour Malekshah AK et al. [25]	2003-8	Mazandaran- clinics	3734	2941(78.7)	793(21.3)	1453(38.9)	1296(34.7)	545(14.6)	441(11.8)
Total Average (%) (95% C.I)				78.4 (72.1-83.7)	21.6 (16.3-27.9)	34.0 (26.9- 42.0)	43.5 (35.5- 51.7)	17.1 (11.4- 21.9)	8.1 (5.6- 11.5)
Cochran's Q (p-value)				389.7 (<0.001)	389.7 (<0.001)	677.1 (<0.001)	580.6 (<0.001)	162.9 (<0.001)	208.8 (<0.001)
I^2 statistic				98.2	98.2	99.1	98.9	97.8	97.1

The studies that evaluate the cause of infertility in IRAN


CI
Moghadam AE et al
Nojomi M et al
Siahkal MS et al
Noorbala AA
Vahidi S et al
Ave
LI
Parsanezhad ME
Moghadam AE et al
Nojomi M et al
Siahkal MS et al
Mohammad Baygi
Ahmadi Asr Badr Y
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SI
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Moghadam AE et al
Nojomi M et al
Siahkal MS et al
Mohammad Baygi
Ahmadi Asr Badr Y
Moghadam LS
Aflatoonian et al
Ave
Total
-0.2
-0.1
0.1
0.3
0.4
CI: Current Infertility
LI: Life time infertility
Combined
PI: Primary infertility
SI: Secondary infertility
Forest Plot of prevalence of infertility

EPIDEMIOLOGY OF INFERTILITY IN IRAN

Infertility factor	PARSANEZHAD	Aflatoonian	Kamali	NHS	MOINI
Male factor %	20.2	20.1	50.5	30.2	22.3
Female factor %	53.9	66.2	28.6	49.3	58.2
Both factor %	11	6.9	11.6	10.2	10.2
Unexplained %	12.84	6.8	9.3	10.3	11
Ovulatory factor %	62.3	57.3	60.42	61.2	21.4
Utrine factor %	10.2	11.8	7.2	5.3	1.9
Endometriosis %	7.5	7.6	9.1	11.2	-
Recurrent abortion %	?	?	0.68	?	
TUBAL FACTOR %	13.2	14.8	15.3	13.6	18.9
CERVICAL FACTOR %	6.8	8.5	7.3	8.7	3.6

Etiologic factor for female infertility

Author	Ovulatory dysfunction	Tubal factor	Endometriosis	Tuboperitoneal factor	Cervical factor	Uterine factor
Moini A, et al. [21]	(21.4)			(18.9)	(3.6)	(1.9)
Parsanezhad [9]	313(45.16)	91(13.1)	9(1.3)		34(4.9)	17(2.45)
Bakhtiari A [23]	420(45.7)	31(3.4)				42(4.6)
Aflatoonian [20]	67(58.8)	28(24.6)	1(0.88)			9(7.9)
Kamali M [24]	(20.36)	(12.64)	(1.28)			(4.13)

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A Meta-Analysis of The Prevalence and Etiology of Infertility in Iran

Ghobad Abangah, M.D.[1], Tayebeh Rashidian, M.D.[2], Marzieh Parizad Nasirkandy, M.D.[3*], Milad Azami, M.D.[1]

1. Department of Gastroenterology, Faculty of Medicine, Ilam University of Medical Sciences, Ilam, Iran
2. Department of Obstetrics and Gynecology, School of Medicine, Ilam University of Medical Sciences, Ilam, Iran
3. Department of Obstetrics and Gynecology, Women's Reproductive Health Research Center, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Abstract

Infertility is a serious health issue in the world affecting approximately 8-10% of couples worldwide. The meta-analysis study was performed to assess the prevalence and etiologic factors associated with infertility in Iran. We made sure that the implementation of study and reporting the results were consistent with the MOOSE and PRISMA guidelines, respectively. All stages of the research were conducted by two authors, and the disagreement at each stage of the research was resolved by consensus. On January 1, 2020, we started a detailed literature search on international online databases, and Iranian Online databases, as well as specialized journals, several authentic international publishers and Google Scholar. We reviewed the reference list of identified articles for missed articles and then searched online for them. Data analysis was performed to estimate the prevalence using a random effects model. The lifetime infertility prevalence was found to be 11.3% [95% confidence interval (CI): 8.6-14.7] and the current infertility was evaluated to be 3.7% (95% CI: 3.2-4.3). The prevalence of primary infertility (based on 45 articles consisting of 51,021 samples) as well as secondary infertility (based on 13 articles consisting of 35,683 samples) in Iran were estimated to be 18.3% (95% CI: 15.4-21.6) and 2.5% (95% CI: 1.6-4.0), respectively. The prevalence of female, male, both and unexplained causes was estimated to be 32.0% (95% CI: 27.6-36.8), 43.3% (95% CI: 38.2-48.6), 12.5% (95% CI: 9.6-16.2) and 13.6% (95% CI: 10.2-17.8), respectively. The prevalence of causes related to ovulation, uterine tubes, and endometriosis in infertile women was estimated to be 54.0% (95% CI: 45.6-62.2), 15.5% (95% CI: 11.3-21.0), 6.2% (95% CI: 3.5-10.6), and 5.4% (95% CI: 2.5-11.3), respectively. In summary, the estimate of infertility burden in Iran did not change between 1990 and 2017 and its prevalence remains high. This research presents a unified and up-to-date overview regarding the burden of infertility in Iran.

Keywords: Etiology, Infertility, Iran, Prevalence

The estimate of infertility burden in Iran did not change between 1990 and 2017 and its prevalence remains high. This study provides a comprehensive and up to-date understanding of the that we need prevention and management interventions to alleviate infertility in Iran.