

**Table 1) Selected parameters**

<b>Parameters</b>
Age
BMI(kg/m <sup>2</sup> )
Infertility length
Primary infertility
Secondary infertility
Male factor
Ovulation factor
Endometrial thickness
Number of sperms after washing
Number of normal sperms after washing
Number of Full sperms after washing
Number of Sluggish sperms after washing
Normal or non-normal sperm condition
Number of follicles

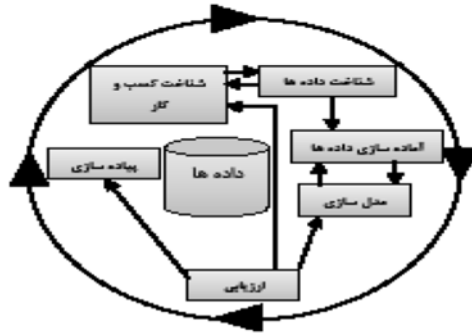
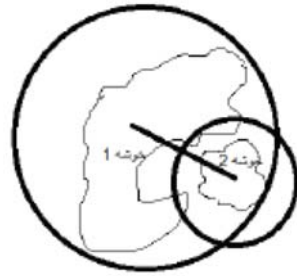


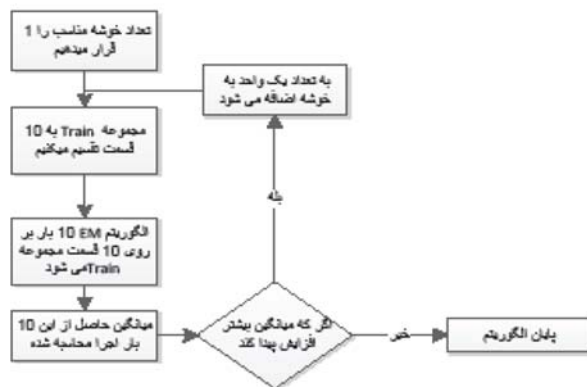
Figure 1) CRISP methodology



**Chart 1)** Comparison of Dunn and Davies Indices



**Figure 2)** Confluence of clusters



**Figure 3)** Process of calculating the appropriate number of clusters in the EM algorithm

**Table 2)** Dispersion of patients in each cluster

<b>Name of Cluster</b>	<b>Frequency in K-Means</b>	<b>Frequency in EM</b>	<b>Frequency Percentage</b>	<b>Percentage of Clustering Frequency of the EM Algorithm</b>
Cluster1	128	157	32	39
Cluster2	32	30	8	8
Cluster3	52	47	13	12
Cluster4	27	13	7	3
Cluster5	91	81	23	20
Cluster6	70	72	17	18

**Table 3) Results from the first cluster**

Parameter	Value of Parameter in each Cluster
Ovulation factor	100%
Male factor	93.0%
Age	Mean 27 years(19-49)
BMI<18.5	3.0%
18.5<BMI<24.9	48.0%
25<BMI<29.9	32.0%
BMI>30	17.0%
Infertility Length	Mean5.4years(1 to 16)
Primary Infertility	100%
Secondary Infertility	0
Endometrial thickness	Mean8ml(3.7 to 14)
Number of Sperm after washing	Mean7ml(0.25-16)
Number of normal sperms after washing	Mean4.5(0.125-10.56)
Number of full sperms after washing	Mean3.9million(0-12)
Number of sluggish sperm after washing	Mean3.025million(0-7.08)
Terato Spermia	84.4%
Asterato Spermia	3.1%
Pyo spermia	11.7%
Spermogram Normal	0.8%

**Table 4)** Results from the first cluster (%)

<b>Parameter</b>	<b>Value of Parameter in the Cluster</b>
Failure	80.1
Success	15.3
Unclear	4.6



**Table 5) Results from the second cluster**

<b>Parameter</b>	<b>Value of Parameter in Each Cluster</b>
Ovulation factor	0
Male factor	93.0%
Age	Mean 32 years(22-44)
BMI<18.5	0
18.5<BMI<24.9	71.9%
25<BMI<29.9	0
BMI>30	28.1%
Infertility Length	Mean2.7years(0.5-12)
Primary Infertility	0
Secondary Infertility	100%
Endometrial thickness	Mean7ml(5to 11)
Number of Sperm after washing	Mean7.2ml(2-14)
Number of normal sperms after washing	Mean4.6(9.9-1)
Number of full sperms after washing	Mean4.2million(0-10.6)
Number of sluggish sperm after washing	Mean3.03million(0.5-5.01)
Terato Spermia	100%

**Table 6)** Results from the second cluster (%)

<b>Parameter</b>	<b>Value of Parameter in the cluster</b>
Failure	90.7
Success	9.3
Unclear	0

**Table 7) Results from the third cluster**

Parameter	Value of Parameter in Each Cluster
Ovulation factor	5.8%
Male factor	100%
Age	Mean28years(20-43)
BMI<18.5	0
18.5<BMI<24.9	42.3%
25<BMI<29.9	50.0%
BMI>30	7.7%
Infertility Length	Mean3.4years(1-12)
Primary Infertility	65.4%
Secondary Infertility	34.6%
Endometrial thickness	Mean7.9mm(2.5-13)
Number of Sperm after washing	Mean4.8million (1.25-14.5)
Number of normal sperms after washing	Mean2.9 million(0.49-9.7)
Number of full sperms after washing	Mean2.1million(0.9-4)
Number of sluggish sperm after washing	Mean2.5million(0-6)
Terato Sperma	100%

**Table 8)** Results from the third cluster

Parameter	Value of Parameter in the cluster
Failure	88.5
Success	10.8
Unclear	0.7

**Table 9) Results from the fourth cluster**

<b>Parameter</b>	<b>Value of Parameter in Each Cluster</b>
Ovulation factor	88.8%
Male factor	40.7%
Age	Mean29years(19-42)
BMI<18.5	0
18.5<BMI<24.9	14.8 %
25<BMI<29.9	7.4%
BMI>30	77.7%
Infertility Length	Mean5.1years(1-16)
Primary Infertility	70.4%
Secondary Infertility	29.6%
Endometrial thickness	Mean8mm(4.5-11)
Number of Sperm after washing	Mean7.5million (1.25-14.5)
Number of normal sperms after washing	Mean4.6million(1.75-9.75)
Number of full sperms after washing	Mean4.5million(0-10.62)
Number of sluggish sperm after washing	Mean2.7million(1-5.4)
Terato Sperma	7.4%
Pyo sperma	37.0%
Spermogram Normal	55.5%

**Table 10) Results from the fourth cluster (%)**

<b>Parameter</b>	<b>Value of Parameter in the Cluster</b>
Failure	88.8
Success	11.1
Unclear	0

**Table 11) Results from the fifth cluster**

Parameter	Value of Parameter in Each Cluster
Ovulation factor	0
Male factor	96.7%
Age	Mean28years(20-40)
BMI<18.5	0
18.5<BMI<24.9	60.4 %
25<BMI<29.9	28.5%
BMI>30	10.9%
Infertility Length	Mean3.7years(0.5-12)
Primary Infertility	100%
Secondary Infertility	0
Endometrial thickness	Mean7.8mm(5-16)
Number of Sperm after washing	Mean6.5million (0.7-13.5)
Number of normal sperms after washing	Mean4.1million(0.3-9)
Number of full sperms after washing	Mean3.4million(0-10.8)
Number of sluggish sperm after washing	Mean3million(0.2-5.5)
Terato Spermia	2.2%
Pyo spermia	96.7%
Spermogram Normal	1.1%

**Table 12)** Results from the fifth cluster (%)

<b>Parameter</b>	<b>Value of Parameter in the cluster</b>
Failure	89.0
Success	7.1
Unclear	3.9



**Table 13) Results from the sixth cluster**

<b>Parameter</b>	<b>Value of Parameter in Each Cluster</b>
Ovulation factor	51.4%
Male factor	92.9%
Age	Mean31years(21-41)
BMI<18.5	0
18.5<BMI<24.9	11.4 %
25<BMI<29.9	74.3%
BMI>30	14.3%
Infertility Length	Mean3years(0.5-11)
Primary Infertility	0
Secondary Infertility	100%
Endometrial thickness	Mean7.5mm(3-14)
Number of Sperm after washing	Mean7million (1.25-15)
Number of normal sperms after washing	Mean4.3million(0.5-9.9)
Number of full sperms after washing	Mean3.6million(0-10.2)
Number of sluggish sperm after washing	Mean2.9million(0.5-4.8)
Asthenospermia	8.5%
Teratospermia	85.7%
Oligospermia	1.4%
Asterospermia	1.4%
Spermogram Normal	2.9%

**Table 14)** Results from the sixth cluster (%)

<b>Parameter</b>	<b>Value of Parameter in the Cluster</b>
Failure	80.0
Success	15.3
Unclear	4.7