RESULTS

This is a prospective cross sectional intervention study was carried out with 120 mother – infant pairs who were classified into two main groups:

The first group (group I) including 60 LBW infants who were cared for by KMC maneuver and exclusive breastfeeding. Their birth weight ranged from 1500 to 2500 grams. They subdivided into 3 sub-group (I a) 20 preterm suffered respiratory distress and consisted of 11 males and 9 females. The second sub-group (I b) included 20 LBW infants with septicemia but who were stable and consisted of 10 males and 10 females. The third sub-group(I c) included 20 LBW infants who were observed for growth (growing babies) and consisted of 10 males and 10 females.

The second group (control group) was cared for by the traditional incubator care. This group included 60 LBW infants who were fed Breastmilk but were predominantly artificial milk. Their birth weight ranged from 1500 to 2500 grams. They were subdivided into three subgroup. The first subgroup (group II a) included 20 LBW infants who suffered respiratory distress and consisted of 11 males and 9 females. The second subgroup (group II b) included 20 LBW infants with septicemia but stable and consisted of 10 males and 10 females. The 3rd subgroup (I c) included 20 LBW infants only for growing and consisted of 10 males and 10 females.

The mothers of all cases (120) were subjected to assessment for anxiety symptoms by using the Beck anxiety Inventory at 6weeks postpartum we assessed the knowledge, attitude and practice (KAP study) of (35) physicians and nurses towards KMC in NICUs of the targeted hospitals included in the study before and after the implementation of KMC maneuver by using a previously prepared questionnaire.

Table (1): **Comparison of mean gestational age & birth weight among studied groups**

Variables	Group 1 N = 60 Mean ± SD Range	Group 2 N = 60 Mean ± SD Range	T	P	Total N = 120 Mean ± SD Range
Gestational Age (wks)	34.85± 1.89 30-37	34.85± 1.89 30-37	0.0	>0.05	34.85± 1.89 30-37
Birth weight. (kg)	2.05± 0.344 1.500-2.600	2.051±0..48 1.500-2.500	0.999	>0.05	18.27± 177.8 1950 - 2

*P < 0.05: significant *P< 0.01: highly significant *P > 0.05: non-significant

The table shows no statistically significant difference of mean ± SD of birth weight & gestational age among all studied groups

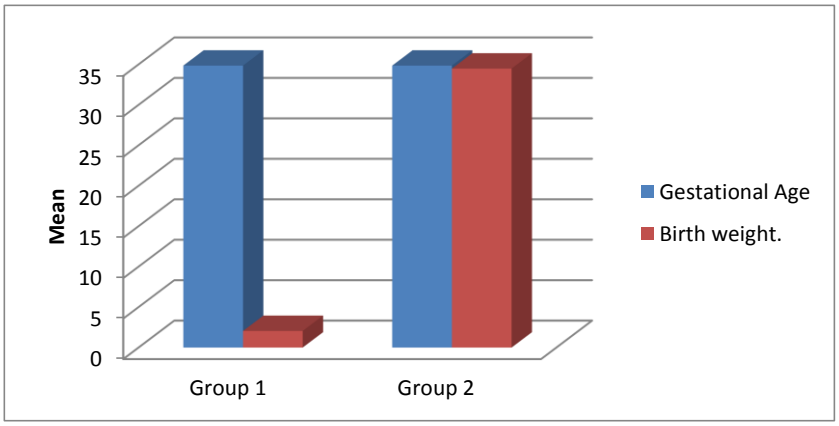

Figure (1) **Comparison of gestational age & birth weight among studied groups**

Table (2): **Percent distribution of socio-demographic variables among studied groups**

Variables		Group 1 N = 60		Group 2 N = 60		X^2	P	Total N = 120	
		No	%	No	%			No	%
Sex	**Male**	31	51.7	31	51.7	0.0	>0.05	62	51.7
	Female	29	48.3	29	48.3			58	48.3

*P < 0.05: significant *P< 0.01: highly significant *P > 0.05: non-significant

The table shows the socio-demographic descriptive data studied groups. Of all

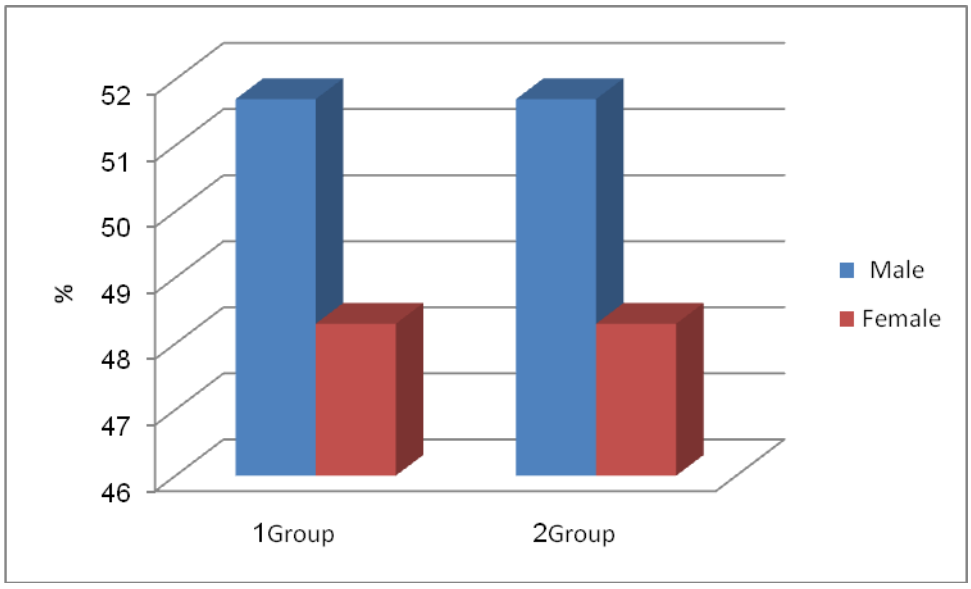

Figure (2) **Distribution of socio-demographic variables among all studied groups,.**

Table (3): **Comparison of mean of the end point age, by days (age of doubling the birth weight) in studied groups**

		Mean	SD	T test	P value
Age of end point by	Intervention group(I)	100.6	16.9	3.235	0.002 Highly significant
	Non intervention group(II)	110.23	13.36		

The table compares the end point age of doubling of weight gain between all studied groups. It shows that the intervention group doubled their weight faster than non intervention group. The difference is highly statistically significant at P<0.002.

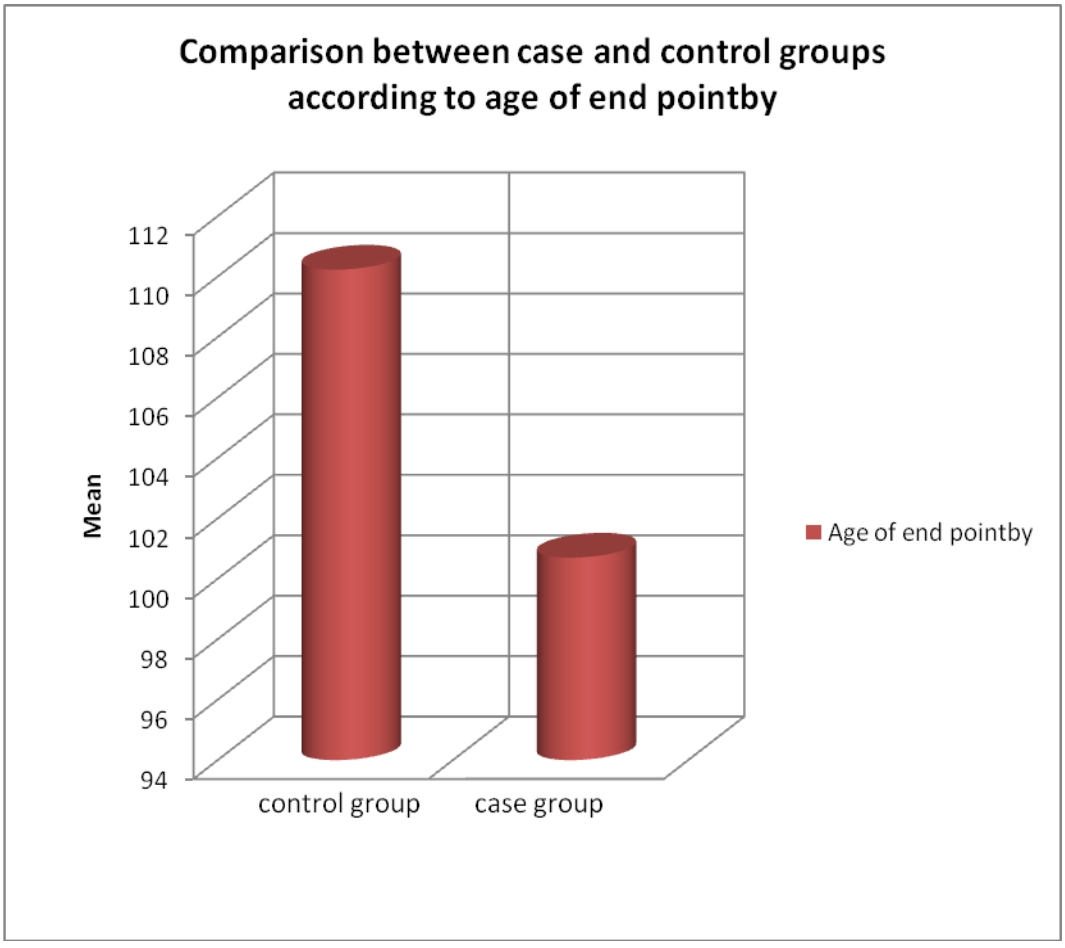

Figure (3 **Comparison of the end point age, by days (age of doubling the birth weight) in studied groups**

Table (4): Comparison of mean of the end point age in days, (age of doubling the birth weight) between cases with respiratory distress and septicemia in-between studied groups.

Variable	Groups	Mean	± SD	Student t test	P value
Age of end point	Respiratory distress(IG)	101.0	29.99	1.045	0.303 NS
	Respiratory distress (non IG)	110.85	29.65		
	Septicemic (IG)	87.65	33.459	1.137	0.26 NS
	Septicemic (non IG)	100.0	35.23		

The table show that the cases of respiratory distress and septicemia in intervention group (IG) reached the end point and doubled their birth weight faster than non intervention group (NIG), but the difference was not significant (P>0.05).

Table (5) **:Comparison of mean of length of hospital stay in (days) in-between the studied groups**

	Group 1 N = 60	**Group 2 N = 60**	**T**	**P**
Mean ± SD	11.08±5.22	15.05±4.93	4.278	0.001
(Range)	3-23	7-28		
Median	10	15		

*P > 0.05: non-significant *P < 0.05: significant *P< 0.01: highly significant

The table shows the length of stay in hospitals in-between the studied groups was statistically highly significant, with a shorter hospital stay in the intervention group (IG).

Table (6) Comparison of length of hospital stay in (days) in-between the studied groups

Days of stay in hospital	Cases apply		control		Total	
	No	%	No	%	No	%
<10	32	53.3	12	20	44	36.7
10-20	24	40	41	68.3	65	54.2
>20	4	6.7	7	11.7	11	9.2
Total	60	100	60	100	120	100

X2=14.45 P=0.001 HS

The table shows the length of stay in hospital among all studied groups .This means shorter hospital stay in intervention group

***Table (7)* Comparison of the length of hospital stay (days) among studied groups *with respiratory distress* and septicemia**

Variable	Groups	Mean	± SD	Student t test	P value
Daye of stay in hosp	Respiratory distress (IG)	12.3	5.805	2.046	0.048 S
	Respiratory distress (nonIG)	15.6	4.285		
	Septicemic (IG)	11.15	4.913	2.843	0.007 HS
	Septicemic(nonIG)	15.45	4.65		

The table shows that the length of stay in hospital in the intervention group with respiratory distress and septicemia was statistically significantly shorter for group I compared to group II. The difference was highly statistically significant for cases of septicemia P<0.007.

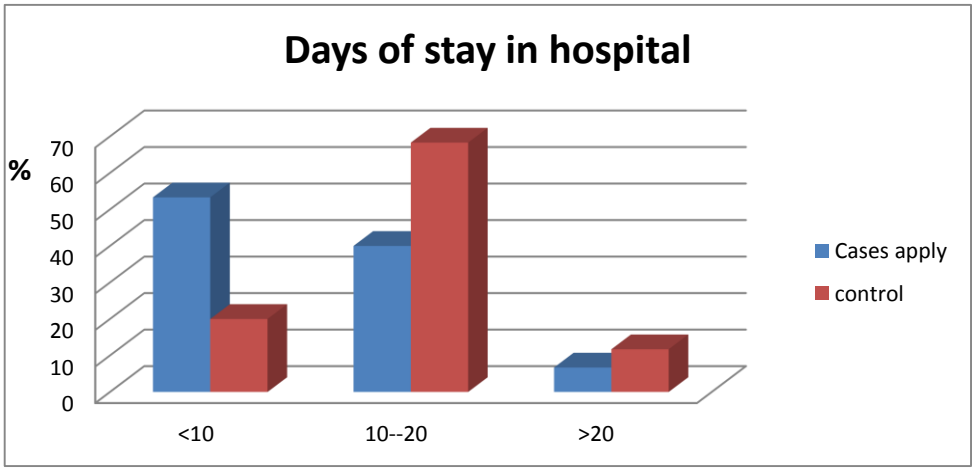

Figure (5): Comparison of length of hospital stay (days) in-between studied groups

Table (8): **Comparison of mean maternal anxiety scores in-between studied groups**

	Group 1 N = 60	Group 2 N = 60	T	P
Mean ± SD	16.2±9.09	21.52±10.12		
(Range)	2-43	7-52	3.03	<0.01
Median	14.5	20		

*P < 0.05: significant *P< 0.01: highly significant *P > 0.05: non-significant

The table shows that the maternal anxiety scores was lowered in the intervention group and the difference was statistically significant when compared to the non-intervention group at (<0.01).

Table (9): Comparison of maternal anxiety score in-between studied groups.

Maternal anxiety score	Cases apply		Control		Total	
	No	%	No	%	No	%
No anxiety	45	75	30	50	75	62.5
Mild to moderate	15	25	27	45	42	35
Severee	0	0	3	5	3	2.5
Total	60	100	60	100	120	100

P=0.006 HS X2= 8.996

The table shows the maternal anxiety score was lower in the intervention group.

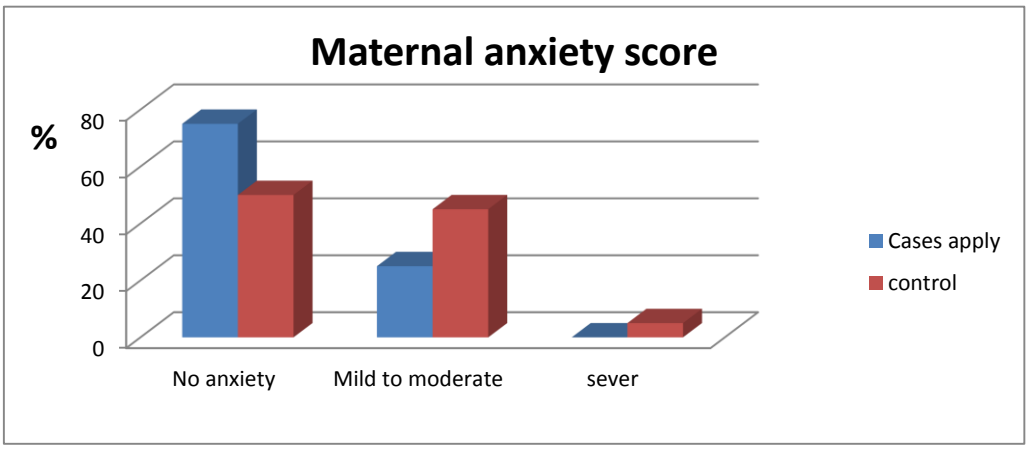

Figure (6): Compares the maternal anxiety scores in the studied groups.

Table (10) **Comparison of the causes of morbidity in-between the studied group**

	Group 1(kmc) N = 46	%	Group 2 N = 34	%
NEC	4	8.69	6	17.65
diarrhea	7	15.2	8	23.5

Table (10b) **Comparison of the causes of morbidity in-between the studied group**

	Intervention group N=60	%	Non Interventi on group N=60	%
Respiratory distress	22	36.6	24	40
septicemia	23	38.3	26	43.3

The table shows the causes of morbidity in the studied groups

Table (11) **Comparison of mortality rate-between the studied groups**

	Intervention group (60)		Non intervention group (60)		Total	
	No	%	No	%	No	%
RD	1	25	1	12.5	2	16.67
septicemia	2	50	4	50	6	50
NEC	1	25	3	37.5	4	33.33
Total	4	100	8	100	12	100

P=0.463 NS **X2= 2.033**

The table shows mortality rate- in the cases in the intervention group were less than Non intervention group by nearly half

***Table (12)*: Comparison of days of stay in hospital, the duration of illness and mortality age among all studied groups**

	Cases apply		control		Student t	P
	Mean	SD	Mean	SD		
Days of stay in hospital	11.08	5.22	15.05	4.93	4.278	0.001 HS
Duration of illness	9.7	5.05	13.56	4.97	4.201	0.001 HS
Mortality age	16.5	4.65	20.25	6.39	1.034	0.325 NS

The table shows decrease days of stay in hospital, decrease duration of illness among intervention group and there is no difference in mortality age

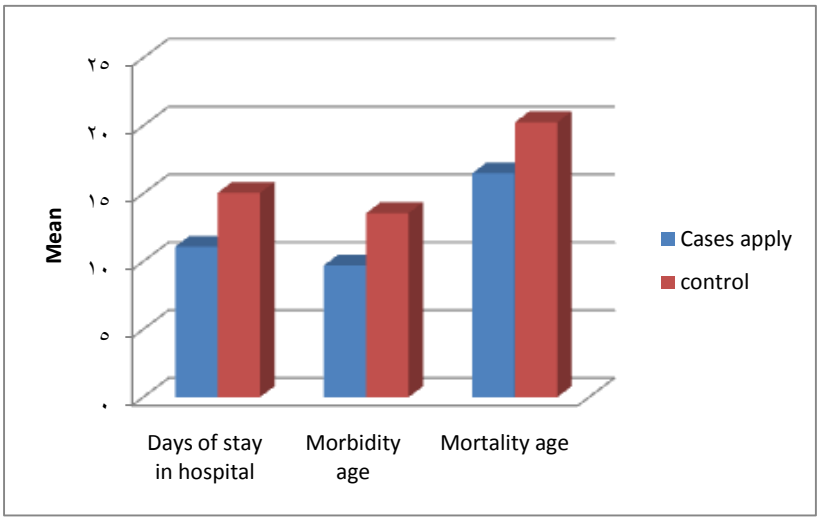

Figure (8) show Comparison of days of stay in hospital , the duration of illness and mortality age among all studied group

***Table (13):*Correlation of maternal anxiety scores with other variables included in the study in all studied groups**

Variables	**r**	**P**
Birth weight	0	>0.05
Gestational age	0.388	<0.001
Length of hospital stay	0.709	<0.001
Age of end point	0.258	<0.05
the duration of illness	0.736	<0.001
Mortality age	0.015	>0.05

*P < 0.05: significant *P< 0.001: highly significant *P > 0.05: non-significant

The table shows that there is statistically non significant between maternal anxiety scores, Birth weight and mortality age, (p>0.05).

There is statistically significant correlation between maternal anxiety scores and age of end point of doubling of birth weight (P<0.05) in all studied groups. Also, there is highly significant +ve correlation between maternal anxiety scores and gestational age, length of hospital stay and duration of illness (P<0.001) in all studied groups included in the study. Otherwise, there is no significant correlation between maternal anxiety scores and other parameters included in the study in all groups.

Table (14): Comparison of scores of knowledge, attitude and practice of medical staff work in NICU of Benha University Hospital and BENCH towards KMC before and after implementation of KMC.

	Total No. of Questions	Score				P
		Before implementation of the study N = 35		After implementation of the study N = 35		
		"Yes" observations		"Yes" observations		
Knowledge		No	221/490	No	299/490	< 0.05
		%	45.1	%	61.0	0.001
Attitude		No	254/490	No	304/490	< 0.05
		%	51.0	%	62.0	0.001
Practice		No	212/490	No	289/490	< 0.05
		%	43.3	%	59.0	0.01

*P > 0.05: non-significant *P < 0.05: significant *P< 0.001: highly significant

The table shows a statistically highly significant difference of mean ± SD of scores of knowledge and attitude towards KMC of medical staff work in NICU of benha University Hospital {total number = 15 (8 physicians & 7 nurses)} and BENCH {total number =20(12 physicians & 8 nurses)} before and after implementation of KMC ($p < 0.05$), but there is statistically significant difference as regard the practice ($p<0.05$)

Table (15): Comparison of scores of knowledge, attitude and practice of medical staff work in NICU of Benha University Hospital towards KMC before and after implementation of kmc

	Total No. of Questions	Score				P
		Before implementation of the study N = 15		After implementation of the study N = 15		
		"Yes" observations		"Yes" observations		
Knowledge		No	107/210	No	149/210	< 0.05
		%	51.0	%	71.0	0.01
Attitude		No	127/210	No	132/210	> 0.05
		%	60.5	%	62.9	
Practice		No	117/210	No	153/210	< 0.05
		%	55.7	%	72.9	0.004

*P > 0.05: non-significant *P < 0.05: significant *P< 0.001: highly significant

The table shows a statistically significant difference of mean ± SD of scores of knowledge and practice of KMC of medical staff work in NICU of benha University Hospital {total number = 15 (8 physicians & 7 nurses)} before and after implementation of KMC ($p < 0.05$), but there is statistically no significant difference as regard the attitude ($p>0.05$)

Table (16): Comparison of scores of knowledge, attitude and practice of medical staff work in NICU of BENCH towards KMC before and after implementation of KMC.

	Total No. of Questions	Score				P
		Before implementation of the study N = 20		*After implementation of the study N = 20*		
		"Yes" observations		*"Yes" observations*		
Knowledge		*No*	*114/280*	*No*	*150/280*	< 0.05
		%	*40.7*	*%*	*53.6*	0.02
Attitude		*No*	*127/280*	*No*	*172/280*	< 0.05
		%	*45.4*	*%*	*61.4*	0.001
Practice		*No*	*212/280*	*No*	*136/280*	<0.05
		%	*75.7*	*%*	*48.*	0.002

*P > 0.05: non-significant *P < 0.05: significant *P< 0.001: highly significant

The table shows a statistically significant difference of mean ± SD of scores of knowledge and practice and highly significant of attitude toward KMC of medical staff work in NICU of BENCH{total number =20(12 physicians & 8 nurses)} before and after implementation of KMC ($p < 0.05$),

Table (17): Correlation between duration of KMC application (hours per day) with days of hospital stay, age of end point doubling of birth weight and maternal anxiety score

	Case group	Pearson correlation	P value	Significance
Duration of KMC application	Days of hospital stay	-0.474	0.001	HS
	Age of end point	-0.101	0.441	NS
	Maternal anxiety score	-0.44	0.001	HS

Table shows a highly significant negative correlation between the duration of KMC application and the days of hospital stay and maternal anxiety score. There is a negative correlation between duration of KMC application and age of end point doubling of birth weight, but it was not statistically significant.

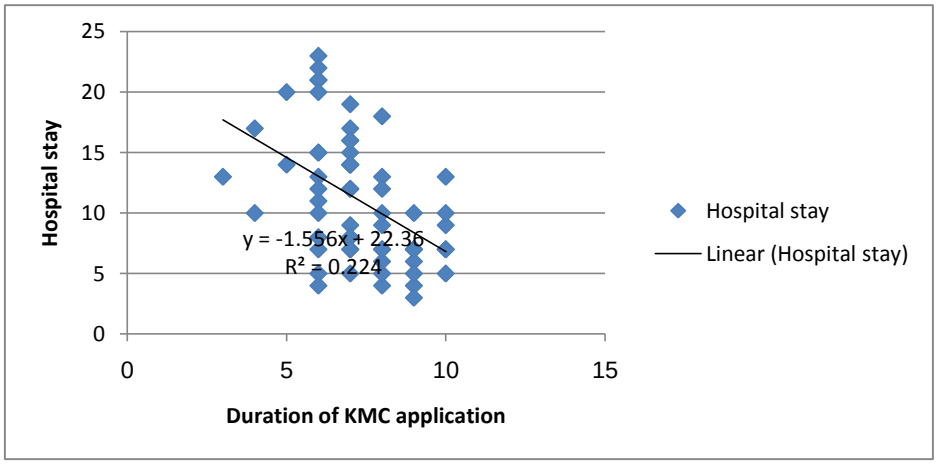

Figure (9): Correlation of duration of KMC application with days of hospital stay.

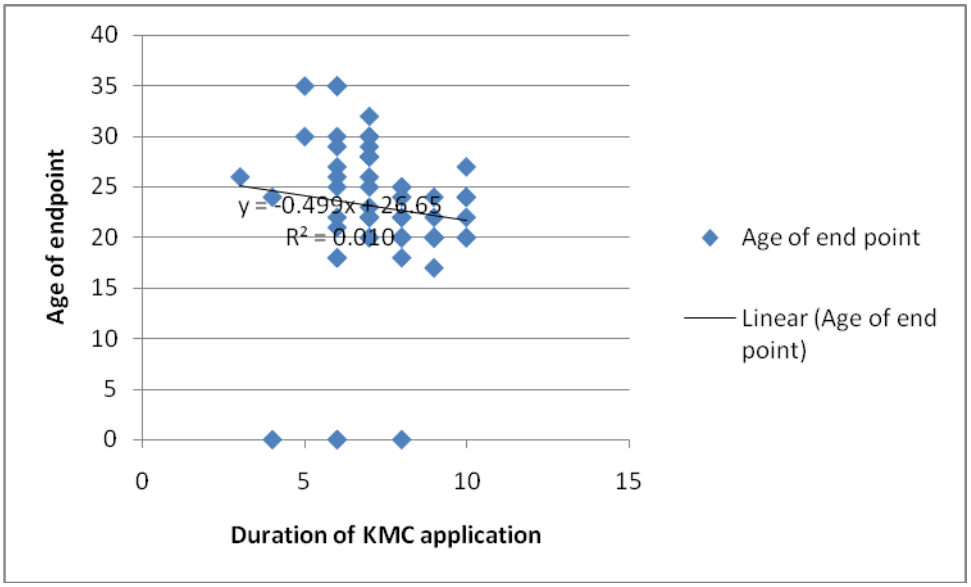

Figure (10): Correlation between duration of KMC application and age of end point.

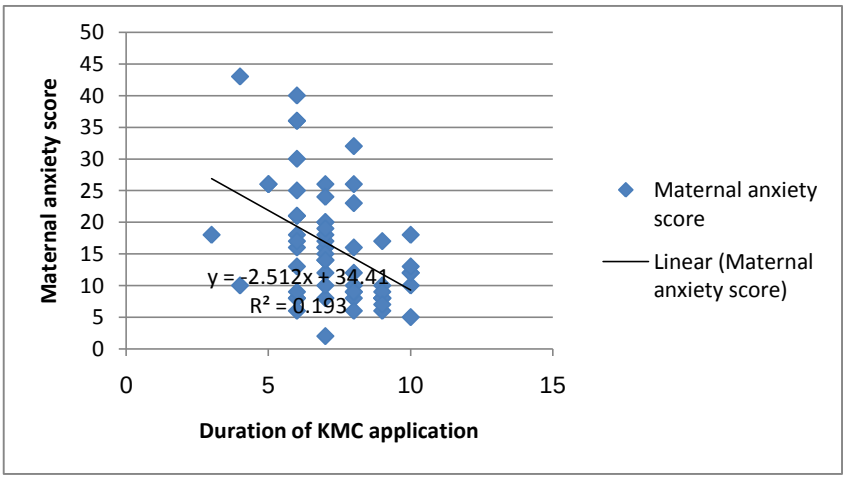

Figure (11): Correlation of the duration of KMC application with the maternal anxiety score.