🔓 OPEN ACCESS

Obstetrics and Gynaecological Nursing

A Study to Assess the Effect of Fetal Kick Count Chart among Antenatal Mothers on Pregnancy Out-Come in Tertiary Care Hospital, KIMS, PBMH, Bhubaneswar, Odisha

Miss. Sanjukta Dalai[1*], Mrs. Kalyani Rath[2], Mrs. Pramila Baxla[3]

[1]Department of Obstetrics and Gynaecological Nursing, Kalinga Institute of Nursing Science, KIIT deemed Tobe University, Bhubaneswar, Odisha, India
[2]Associate Profressor, Department of Obstetrics and Gynaecological Nursing, Kalinga Institute of Nursing Science, Bhubaneswar, Odisha, India
[3]Assistant Professor, Department of Obstetrics and Gynaecological Nursing, Kalinga Institute of Nursing Science, Bhubaneswar, Odisha, India

Abstract		Original Research Article

A descriptive study with quantitative approach was undertaken on 110 antenatal mothers selected by consecutive sampling technique in KIMS, PBMH Bhubaneswar, Odisha to assess the effect of DFMC chart among antenatal mothers with 34 weeks of gestation and its effect on pregnancy outcome. Data were collected through DFMC chart & observational checklist i.e. APGAR score and analysed by using descriptive & inferential statistics. Finding revealed that highest % of the antenatal mothers were in the age of 25.288 ± 2.222 years (80%), majority 47 (42.7%) mothers were in second gravida, majority 54(49.2%) mothers had visited 4 times antenatal visits after 34 weeks of gestations, maximum 82(74.6%)mothers had gained weight during pregnancy between 8-11kg, majority 49(44.5%) mothers had delivered at gestational age of 38-39 weeks, maximum 46 (41.8%)antenatal mothers had daily fetal kicks between 7-9 kicks, maximum 80 (72.7%)mothers had delivered normal baby. 1 minute APGAR score between (6-10). In this study consecutive sampling technique was used to select 110 antenatal mothers who were meeting the sampling criteria. An observational checklist was used to assess the APGAR scoring of the newborn for assessing positive or negative pregnancy outcome from the mothers who maintained DFMC chart during their antenatal period (beyond 34 weeks of gestations). Mothers were instructed for counting DFMC thrice a day morning (at 9-10am after breakfast), noon (at 1-2pm after lunch) & evening (at 9-10pm after dinner) for 15 days for knowing pregnancy outcome. Findings of this study showed that mothers who had Very good (7-9) and excellent fetal kicks (10-12) had delivered newborn baby in excellent (normal) condition, cried immediately after birth and no need `of NICU care. Calculated P value was 0.000 at 0.05 level of significance. Which indicated that there is significant association between DFMC chart and 1 minute APGAR score (pregnancy outcome). Those mothers who used DFMC during their antenatal periods, their pregnancy outcome was also good. The study was concluded that DFMC chart is effective to correlate with pregnancy outcome
Keywords: Daily fetal kick count chart, Antenatal Mothers, Pregnancy outcome.

INTRODUCTION

Within the field of midwifery and obstetrics, maternal perception of fetal movement in utero has long been an indicator of fetal wellbeing. Early textbooks defined maternal recognition of fetal movement as "quickening" a milestone for dating the pregnancy and a verification of viability [1]. A decrease or cessation of movement was further acknowledged as a sign of fetal death. In the past 20 years the assessment of fetal movement has been refined as an accurate and valid tool for fetal surveillance.

The infant mortality rate in India is 37/1000 live births (National Family Health Survey 2015). Stillbirth is a high global burden and the estimated stillbirth rate in India is 26/1000 in the year 2013 and that of Odisha is 40/1000 deliveries which is the highest among all other states (2014-16) 21. Some still births are unexplained and some are avoidable. But in some cases, still births and intrauterine deaths can be preventive if the mothers is highly aware of her foetal movements. The poorest countries have the highest incidences of stillbirth, with two regions, sub-Sahara Africa and South Asia, together accounting for nearly 70% worldwide stillbirth (World Health Organisation).

A comparative study was conducted in Sweden between women with decreased foetal movement counts on their foetal movement chart (DFMC) (n=161) and women with normal foetal movement counts (n=1354). Total 1515 women in the third trimester of pregnancy counted foetal movements for 15minutes in the evening and noted the count on the foetal movement chart. A decreased in foetal movements was defined as two consecutive counts below the lowest limit (alarm signal). The alarm signal was associated with an increased risk of placental insufficiency ($p<0.001$) and imminent premature labour ($p<0.001$) and thereby indirectly with an increased risk of birth of a baby with birth weight <2500g ($p<0.05$), preterm baby ($p<0.05$) or small for gestational age baby ($p<0.05$). The alarm signal was also associated with an increased risk of the birth of babies with congenital malformations ($p<0.05$), respiratory disturbances ($p=0.01$) and hypoglycaemia ($p<0.05$). The short term method of foetal movement counting can be used to preselect a group of pregnant women whose unborn fetus is at particular risk [2].

A prospective study was conducted in Amritsar among 500 booked cases after introducing daily foetal movement count chart (DFMC) in the ninth month of pregnancy. DFMC chart was used to record the number of foetal movements perceived by mothers one hour after food {breakfast, lunch & dinner}. Foetal movements were satisfactory if the count has three or more in each occasion. No fetus was lost in 250 cases that were given DFMC chart. This was compared to 250 booked cases, that were not given the chart. Five intrauterine deaths occurred in the ninth month of pregnancy. The findings of the studies showed that foetal death reduced from 20.4 per 1000 live births to nil in the study group. The results for intrauterine deaths were statistically analysed using chi – square test and the difference was found to be significant at the value of $p<0.025$ [3].

There are about 700-800 antenatal mothers attending the antenatal outpatient department of SJMCH, Bangalore. Out of them around 120 primigravida mothers beyond 36 weeks of gestation attend the department every month. 9% of mothers come to SJMCH with history of decreased foetal movements. There are about 4 intrauterine deaths in every 150 deliveries conducted per month. A similar study was done in 2009 in SJMCH" to assess the effectiveness of structured teaching programme on self-assessment of daily foetal movement count chart among primigravida mothers" and the recommendation included is to study the maternal compliance to foetal kick count chart and its effect on pregnancy outcome.

From the above literature search and from the clinical experience the researcher and during clinical duty period investigator have heard many doctors suggesting to do DFMC to the mothers, so investigator decided to do research on use of DFMC chart and to see its effect on pregnancy outcome. The researcher felt the need for the study in educating the antenatal mothers about the daily foetal kick count chart by the health personnel and thereby reducing prenatal Mother.

Objectives of the Study
- To find out the effect of daily foetal kick count chart on pregnancy outcome.

METHODS
A quantitative approach and non-experimental exploratory descriptive research design was used in this study. Non probability consecutive sampling technique was adopted for selecting 110 antenatal mothers beyond 34 weeks of gestation who are planned for deliver in KIMS, Hospital, Bhubaneswar, Odisha. The data collection was done by using demographic proforma, DFMC chart and APGAR score. Pilot study was conducted on 11 samples and found that the tool was feasible and researchable. Data obtained were analyzed in terms of the objectives using descriptive and inferential statistics. Data was collected from 1st may to 30th May 2018. Research and Ethical clearance was obtained from Research and Ethics committee of KIIT University, Bhubaneswar. Permission was obtained from the concerned authority of selected hospital. The investigator herself collected the data using of KIMS, Hospital, Bhubaneswar, Odisha. Data was analysed using descriptive and inferential statistics. Demographic data was analysed in terms of frequency and percentage. Fisher exact test was used to evaluate the effectiveness of DFMC chart. Fisher exact test was used to find association between the pregnancy outcome (APGAR score) and selected demographic variables.

RESULTS
The data obtained from the study population were analysed and interpreted in terms of objectives and hypothesis of the study.

Findings regarding demographic variables of antenatal mothers

Table-1: Demographic characteristics of the study populations (n=110)

Number Of Mothers	Mean ± SD(age)
110	25.890 ± 2.887

Sl. No	CHARECTERISTIC (GRAVIDA)	FREQUENCY	PERCENTAGE (%)
1	1	42	38.2
2	2	47	42.7
3	3	18	16.3
4	>3	03	2.8
	TOTAL	110	100%
Sl. No	(NUMBER OF ANTENATAL VISITS)	FREQUENCY	PERCENTAGE (%)
1	2	04	3.6
2	3	46	41.8
3	4	54	49.2
4	>4	06	5.4
	TOTAL	110	100%
Sl. No	(TOTAL WEIGHT GAIN DURING PREGNANCY IN KG)	FREQUENCY	PERCENTAGE (%)
1	5-8kg	15	13.6
2	8-11kg	82	74.6
3	>11kg	13	11.8
	TOTAL	110	100%
Sl. No	POG DURING DELIVERY	FREQUENCY	PERCENTAGE (%)
1	37-38wks	45	40.9
2	38-39wks	49	44.5
3	39-40wks	16	14.6
	TOTAL	110	100%
Sl. No	(DFMC CHART)	FREQUENCY	PERCENTAGE (%)
1	1-3	06	5.5
2	4-6	24	21.8
3	7-9	46	41.8
4	10-12	34	30.9
	TOTAL	110	100%
Sl. No	(1 MINUTE APGAR SCORE)	FREQUENCY	PERCENTAGE (%)
1	0-4	06	5.5
2	4-6	24	21.8
3	6-10	80	72.7
	TOTAL	110	100%

Findings related to sample characteristics
- Mean maternal age of the sample was 25.890 ± 2.887 years
- Out of 110 mothers, maximum 47(47.7%) mothers are gravida2, and minimum 03(2.8%) mothers are gravida3.
- Analysis show maximum antenatal mothers had visited 54(41.2%) 4 times antenatal visit, and minimum 4(3.6%) had visited 2 times antenatal visit.
- The maximum 82(74.6%) antenatal mothers total weight gained during pregnancy had 8-11kg, and minimum 13(11.8%) antenatal mothers had more than 11kg weight gain during pregnancy.
- Maximum 49(44.5%) mothers delivered between 38-39 weeks and minimum 16(14.6%) mothers delivered between 39-40 weeks of gestation.
- The maximum mothers 46(41.8%) had 7-9 daily fetal kicks count, and 6(5.5%) mothers had less than 3 fetal kicks count.
- Maximum 80(72.7%) mothers delivered baby with excellent APGAR score and minimum 6(5.5%) mothers delivered baby with low APGAR score.
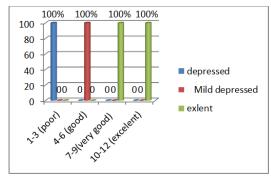

Fig-1: Histogram representing the distribution of percentage of fetal kicks and 1minute APGAR score (pregnancy outcome)

Table-2: Distribution of percentage of fetal kicks and 1minute APGAR score (pregnancy outcome)

CHARACTERISTICS	1 MINUTE APGAR SCORE			Frequency	P value
	0-4	4-6	6-10		
FETAL KICKS	depressed	Mild depressed	excellent		
1-3 (poor)	06 (100%)	00(00%)	00(00%)	06 (100%)	
4-6 (good)	00(00%)	24(100%)	00(00%)	24(100%)	0.000
7-9 (very good)	00(00%)	00(00%)	46(100%)	80(100%)	
10-12 (excellent)	00(00%)	00(00%)	34(100%)		
TOTAL	06(5.45%)	24(21.82%)	80(72.73%)	110(100%)	

Findings related to effect of daily fetal kicks count chart on pregnancy outcome

Fetal kicks 7-9 (very good) 46(100%) and 10-12(excellent) 34(100%) were given 80(72.7%) positive pregnancy outcome APGAR score (6-10) with excellent condition baby, and less than 3(poor) fetal kicks count 06(5.45%) were delivered poor APGAR score with depressed baby. Calculated P value is 0.000 at 0.05 level of significance. As a calculated 'P' value is less than tabulated P value, so there is significant association between DFMC chart and 1 minute APGAR score (pregnancy outcome).

Table-3: Variables with Pregnancy Outcome

VARIABLES	CHARACTERISTICS	1 MINUTE APGAR SCORE			frequency	P value	Test result
		0-4	4-6	6-10			
	GRAVIDA	depressed	Mild depressed	excellent			
GRAVIDA	Garvida1	02(4.8%)	10(23.8%)	30(71.4%)	42(100%)	1.000	Fisher exact=1.000 P value >0.05 Not statistically significant
	Gravida2	03(6.4%)	10(21.3%)	34(72.3%)	47(100%)		
	Gravida3	01(5.8%)	04(22.2%)	13(72.2%)	18(100%)		
	>gravida3	00(0%)	00(0%)	03(100%)	03(100%)		
	TOTAL	06(5.5%)	24(21.8%)	80(72.7%)	110(100%)		
NO. ANTENATAL VISITS	2	0(0%)	0(0%)	04(100%)	04(100%)	0.243	Fisher exact=0.243 P value >0.05 Not statistically significant
	3	03(6.5%)	08(17.4%)	35(76.1%)	46(100%)		
	4	03(5.6%)	12(22.2%)	39(72.7%)	54(100%)		
	>4	0(0%)	04(66.7%)	02(33.3%)	06(100%)		
	Total	06(5.5%)	24(21.8%)	80(72.7%)	110(100%)		
TOTAL WEIGHT GAIN DURING PREGNANCY	5-8kg	0(0%)	02(13.3%)	13(86.7%)	15(100%)	0.640	Fisher exact=0.640 P value >0.05 Not statistically significant
	8-11kg	06(7.3%)	20(24.4%)	56(68.3%)	82(100%)		
	>11kg	0(0%)	02(15.4%)	11(84.6%)	13(100%)		
	Total	06(5.5%)	24(21.8%)	80(72.7%)	110(100%)		
POG DURING DELIVERY IN WEEKS	37-38wks	02(4.4%)	11(24.4%)	23(72.2%)	45(100%)	0.293	Fisher exact=0.293 P value >0.05 Not statistically significant
	38-39wks	04(8.1%)	07(14.3%)	38(77.6%)	49(100%)		
	39-40wks	0(00%)	06(37.5%)	10(62.5%)	16(100%)		
	Total	06(5.5%)	24(24.8%)	80(72.7%)	110(100%)		

This Table-3 Provides or summaries the demographic data of the study population of the mothers use DFMC chart beyond 34 weeks of gestation & its effect on pregnancy outcome. The above fisher test shows that above demographic variables dose not have significant association with the pregnancy outcome.

Findings related to the association between demographic variable and pregnancy outcome

- Maximum 34(72.3%) gravida2 mothers delivered excellent score with normal baby and minimum 1(5.8%) gravida3 mothers delivered depressed baby with low APGAR score.
- Maximum 4(100%) mothers visited antenatal clinics 2times and delivered normal baby with excellent APGAR score, minimum 3(5.6%) mothers visited antenatal clinic 4times was delivered depressed with low APGAR score baby.
- Maximum 13(86.7%) mothers weight gain during pregnancy between 5-8kg delivered normal baby with excellent APGAR score, and minimum 8(7.3%) mothers weight gain during pregnancy were 8-11kg delivered depressed baby with low APGAR score.

- Maximum 38(77.6%) mothers POG at delivery were 38-39 weeks of gestation delivered normal baby with excellent APGAR score, and minimum 2(4.4%) mothers POG at delivery 37-38weeks of gestation were delivered depressed baby with low APGAR score.
- Maximum 80 mothers mean maternal age were 25.95 ± 2.845 years delivered normal baby with excellent APGAR score, 06 mothers mean maternal age were 26.166 ± 3.350 years delivered depressed baby with low APGAR score.

DISCUSSION

The present study was conducted to determine effect of DFMC chart and pregnancy out-come. Quantitative approach, descriptive design was adopted for this study.110 beyond gestational age 34 weeks mothers were selected by consecutive sampling technique. Data was collected by using DFMC chart & APGAR score to find out pregnancy outcome. The findings of the study have been discussed with reference to the objectives, need for the study, related literature of the study. It is presented in the line with the objectives of the study.

A comparative study was conducted in Sweden between women with decreased foetal movement counts on their foetal movement chart (DFMC) (n=161) and women with normal foetal movement counts (n=1354). 1515 women in the third trimester of pregnancy counted foetal movements for 15minutes in the evening and noted the count on the foetal movement chart. A decreased in foetal movements was defined as two consecutive counts below the lowest limit (alarm signal). The alarm signal was associated with an increased risk of placental insufficiency (p<0.001) and imminent premature labour (p<0.001) and thereby indirectly with an increased risk of birth of a baby with birth weight <2500g (p<0.05), preterm baby (p<0.05) or small for gestational age baby (p<0.05). The alarm signal was also associated with an increased risk of the birth of babies with congenital malformations (p<0.05), respiratory disturbances (p=0.01) and hypoglycaemia (p<0.05). The study was find out statical significant because those mothers had low fetal movement also had high risk baby and mothers with normal fetal kicks had normal baby.

A prospective study was conducted in Amritsar among 500 booked cases after introducing daily foetal movement count chart (DFMC) in the ninth month of pregnancy. DFMC chart was used to record the number of foetal movements perceived by mothers one hour after food {breakfast, lunch& dinner}. Foetal movements were satisfactory if the count has three or more in each occasion. No fetus was lost in 250 cases that were given DFMC chart. This was compared to 250 booked cases, that were not given the chart. Five intrauterine deaths occurred in the ninth month of pregnancy. The findings of the studies showed that foetal death reduced from 20.4 per 1000 live births to the study group. The results for intrauterine deaths were statistically analysed using chi – square test and the difference was found to be significant at the value of p<0.025.

LIMITATIONS

- The study was limited to third trimester beyond gestational age (34weeks) mothers.
- The study was restricted to one setting.
- Study was observational rather than an interventional design.
- Tool used for data collection measure only observational checklist.
- There was a observational checklist which did not give total information regarding fetal outcome.

CONCLUSION

- This chapter deals with the conclusion drawn based on the findings of the study, implications, limitations, suggestions and recommendations.
- The following conclusions were drawn from the findings of the study.
- The study result showed that use of DFMC chart gives positive pregnancy outcome.
- Findings concluded that use of DFMC chart beyond 34 weeks of gestation thrice a day up to 15 days, fetal kick count more than 10kicks in 12 hours gives positive pregnancy outcome.

REFERENCES

1. Dutta DC. Textbook of Obstetrics. 6th edition. Kolkata: central book agency publication. 2004.
2. Dahlen H, Priddis H, Schmied V, Sneddon A, Kettle C, Brown C, Thornton C. Trends and risk factors for severe perineal trauma during childbirth in New South Wales between 2000 and 2008: a population-based data study. BMJ open. 2013 Jan 1;3(5):e002824.
3. Clark J, Britton K. Factors contributing to client nonuse of the cardiff count-to-ten fetal activity chart. Journal of nurse-midwifery. 1985 Nov 1;30(6):320-6.