



ASSOCIATION OF PRE-PREGNANCY BMI, GESTATIONAL WEIGHT GAIN AND INTENTIONS TO BREASTFEED WITH BREASTFEEDING INITIATION AMONG PRIMIPAROUS FEMALES- AN OBSERVATIONAL STUDY

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Abstract :

OBJECTIVE - To findout the association of pre-pregnancy BMI , gestational weight gain and intentions to breastfeed with breastfeeding initiation among primiparous females.

METHOD - The study started with synopsis presentation to an ethical committee of P.E.S Modern College Of Physiotherapy. Ethical clearance was obtained from the ethical committee. Various OBG hospitals in and around the city were visited. Participants were selected according to inclusion and exclusion criteria. The study was explained to the participants individually and written consents were taken from them. The participants were asked to fill the infant feeding intention scale (IFI) during 32-40 weeks of gestation while the visit to clinic. At the same time, information regarding the pre-pregnancy BMI was collected from the file record of participants. The data regarding gestational weight gain and initiation of breastfeeding was collected by revisiting the hospitals within one week postpartum .At this time, each participant was asked if she breastfed her baby within first hour of birth. Data analysis was done.

RESULT – chi square test was used to find out the association of pre pregnancy BMI, gestational weight gain and intentions to breastfeed with breast feeding initiation which showed the p value of 0.043, 0.135 and 0.018 respectively

CONCLUSION – this study shows there is significant association of pre pregnancy BMI and intentions to breastfeed with breastfeeding initiation while there is no significant association of gestational weight gain with breastfeeding initiation.

KEYWORDS – pre pregnancy BMI, gestational weight gain, IFI scale, intentions to breastfeed.

1.INTRODUCTION

The health benefits associated with breastfeeding for both children and mother are well established. The breastfeeding benefits for infants include immunological protection from illness, fever, respiratory tract infections, decreased risk of obesity. It also improves infant's cognitive development⁽¹⁾ In addition, women who breastfeed have lower risk for breast and ovarian cancer and are less likely to develop postpartum depression⁽¹⁾ Exclusive breastfeeding is defined as infant feeding with breast milk only, without any additional food or drink.⁽¹⁾ The WHO recommended exclusive breastfeeding for a minimum of 6 months post-birth followed by continued breastfeeding for a minimum of one year as complementary foods are introduced⁽¹⁾

Intentionality may be described as a major determinant of behaviour which implies the underlying cognitive process of commitment to carry out a specific action at a given time and place and identification of definitive strategies for eliciting, carrying out and reinforcing the behaviour.⁽¹⁾ This suggests that intention is a critical basis for intervention and is considered of major motivational significance because it is subject to modification. ⁽¹⁾ Worldwide, breastfeeding intention has been described as one of the strongest

potentially modifiable factors associated with breastfeeding compliance.⁽¹⁾ Having a healthy pregnancy is one of the best ways to promote a healthy birth. Getting early and regular prenatal care improves chances of healthy pregnancy.⁽²⁾ This care can be given even before pregnancy with pre-pregnancy care visit one of the aspects of which is the maintenance of pre-pregnancy BMI within normal. ⁽²⁾Pre-pregnancy BMI is computed as the reported weight in kilograms divided by square of height in metres.⁽³⁾Gestational weight gain can be defined as the amount of weight gained during the entire pregnancy period. It can be computed as the difference between the weight measured just before delivery and reported weight before pregnancy^(3,4) The institute of medicine(IOM) has released guidelines that specifies the amount of weight gain that is acceptable based on mother's pre-pregnancy BMI. They are: ⁽⁴⁾

Pre-Pregnancy BMI Category (Body Mass Index = BMI)	Recommended Total Weight Gain During Pregnancy	
BMI < 18.5 Underweight	12.5 – 18.0 kg	28.0 – 40.0 lbs
BMI 18.5 – 24.9 Normal Weight	11.5 – 16.0 kg	25.0 – 35.0 lbs
BMI 25.0 – 29.9 Overweight	7.0 – 11.5 kg	15.0 – 25.0 lbs
BMI ≥ 30 Obese	5.0 – 9.0 kg	11.0 – 20.0 lbs

Body Mass Index (BMI) = Weight (kg) / [Height (m)]²

2.NEED OF STUDY

1. Timely initiation of breastfeeding guarantees that infants receive the colostrum, which contains antibodies that protect the newborn against diseases. ⁽¹⁾
2. Breastfeeding within first hour of life prevents newborn death due to sepsis, pneumonia, diarrhoea and hypothermia. ⁽¹⁾
3. There is literature suggesting infants from pre-pregnancy overweight or obese mothers presented with higher probability of early weaning compared with infants from normal weight mothers. ⁽⁵⁾
4. Also, breastfeeding intention is the strongest predictor of breastfeeding continuation. Women with definite intention to breastfeed are more likely to breastfeed for longer duration compared with those having tentative intention. ⁽⁶⁾
5. The breastfeeding duration is also significantly associated with gestational weight gain. ⁽⁷⁾
6. But there is no literature studying the effects of these three factors together on the breastfeeding initiation.

3.AIM

To study the association of pre-pregnancy BMI, gestational weight gain and intentions to breastfeed with breastfeeding initiation among primiparous females- an observational study.

4.OBJECTIVES

1. To find out the association of pre-pregnancy BMI with breastfeeding initiation among primiparous females.
2. To find out the association of gestational weight gain with breastfeeding initiation among primiparous females.
3. To find out the association intentions to breastfeed with breastfeeding initiation among primiparous females.

5.HYPOTHESIS

5.1 Null hypothesis(h₀):

There will be no significant association of pre-pregnancy BMI, gestational weight gain and intentions to breastfeed with breastfeeding initiation among primiparous females.

5.2 Alternate hypothesis(h₁):

There will be significant association of pre-pregnancy BMI, gestational weight gain and intentions to breastfeed with breastfeeding initiation among primiparous females.

6.METHODOLOGY

1. Study design: observational study
2. Sample size:80
3. Sampling method:Purposive sampling
4. Study population: pregnant females
5. Study setting:Various OBG hospitals in and around Pune
6. Study duration: 6 months

7.MATERIAL

1. Pen
2. Paper
3. Outcome measures
4. Consent forms

8.CRITERIA

8.1 INCLUSION CRITERIA

1. -Primiparous females
2. -Age:21-30 years
3. -Singleton pregnancy

8.2 EXCLUSION CRITERIA

1. Multiparity
2. Still birth
3. Co-morbidities
4. Smokers
5. Pregnancy duration less than 32 weeks

9.OUTCOME MEASURES

1. Infant feeding intention(IFI) scale(1,8)
2. It's cronbach Alpha coefficient value is 0.90(10)

SCORING:

1. For item 1:very much agree=0,somewhat agree=1,unsure=2,somewhat disagree=3,very much disagree=4
2. For items 2,3,4 and 5:very much agree=4,somewhat agree=3,unsure=2,somewhat disagree=1,very much disagree=0
3. Total score =(mean of items 1+2)+(sum of items 3,4,5).Thus total score ranges from 0(very strong intention to not breastfeed at all) to 16(very strong intention to provide breastmilk as sole source of milk for first six months).

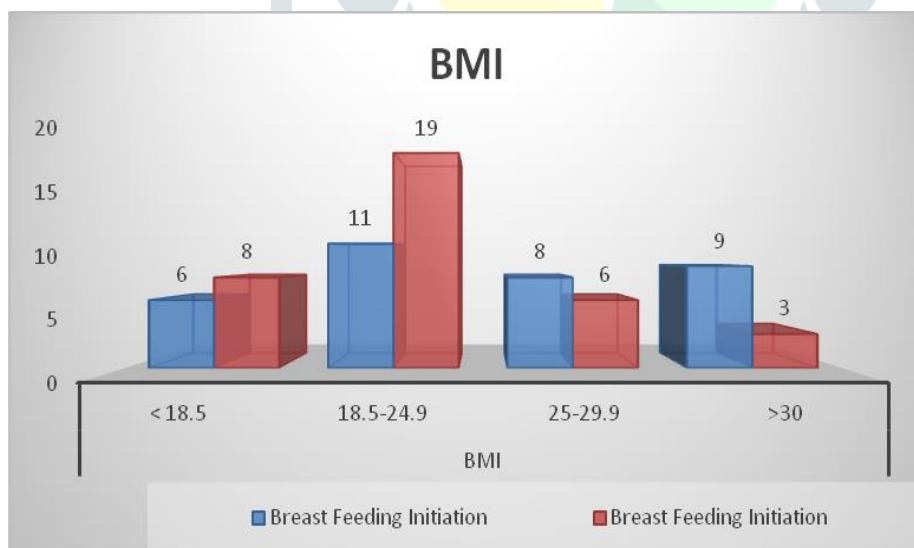


	very much agree	somewhat agree	unsure	somewhat disagree	very much disagree
1. I am planning to only formula feed my baby (will not breastfeed at all).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am planning to breastfeed my baby or at least try.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. When my baby is one-month-old, I will be breastfeeding without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. When my baby is three-months-old, I will be breastfeeding my baby without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When my baby is six-months-old, I will be breastfeeding my baby without using any formula or other milk.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10.PROCEDURE

The study began with a synopsis presentation in front of the ethical committee of PES modern college of physiotherapy. Ethical clearance was obtained by the committee. Various OBG hospitals in and around the city were visited. Participants were selected according to inclusion and exclusion criteria. The study was explained to the participants individually and written consents were taken from them. The participants were asked to fill the infant feeding intention scale (IFI) during 32-40 weeks of gestation (8,9) while the visit to clinic. At the same time, information regarding the pre-pregnancy BMI was collected from the file record of participants. The data regarding gestational weight gain and initiation of breastfeeding was collected by revisiting the hospitals within one week postpartum. At this time, each participant was asked if she breastfed her baby within first hour of birth. Data analysis was done.

11.DATA COLLECTION AND ANALYSIS

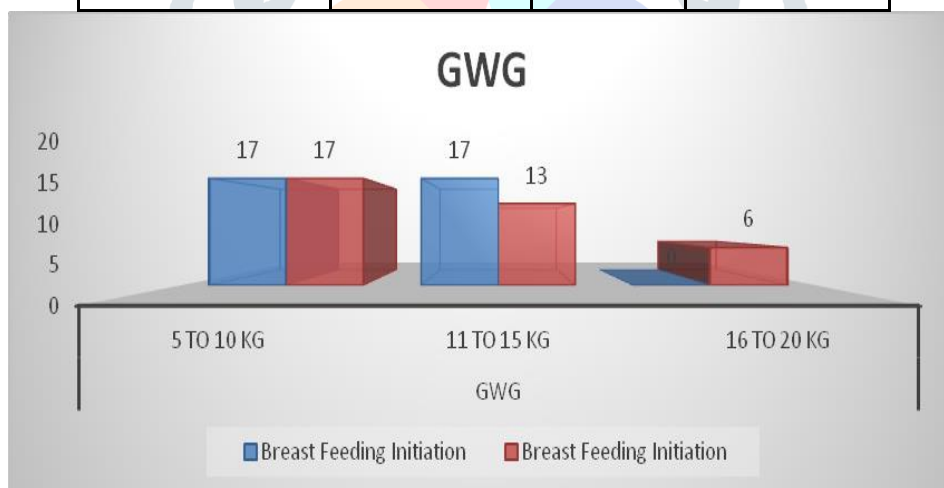


Chi-Square Tests			
	Value	Df	P-Value
Pearson Chi-Square	8.152	3	0.043
N of Valid Cases	70		

Since one of the variable (Breast Feeding Initiation) is qualitative (binary). Chi-Square test is carried out to test association. From above table, we can observe that, P-Value is less than 0.05. Hence, we can conclude that, there is significant association between breast feeding initiation and BMI.

			Breast Feeding Initiation		Total
			Delayed	On Time	
BMI	< 18.5	Count	6	8	14
		%	17.6%	22.2%	20.0%
	18.5-24.9	Count	11	19	30
		%	32.4%	52.8%	42.9%
	25-29.9	Count	8	6	14
		%	23.5%	16.7%	20.0%
>30	Count	9	3	12	
	%	26.5%	8.3%	17.1%	
Total		Count	34	36	70
		%	100.0%	100.0%	100.0%

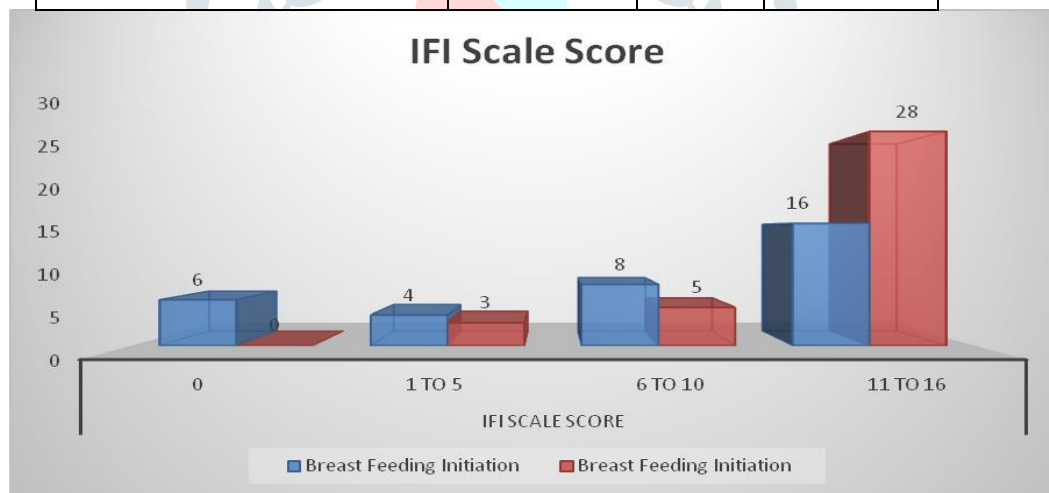
Chi-Square Tests			
	Value	df	P-Value
Pearson Chi-Square	4.007	2	0.135
N of Valid Cases	70		



Since one of the variable (Breast Feeding Initiation) is qualitative (binary). Chi-Square test is carried out to test association . From above table, we can observe that, P-Value is greater than 0.05. Hence, we can conclude that, there is no significant association between breast feeding initiation and GWG.

			Breast Feeding Initiation		Total
			Delayed	On Time	
GWG	5 to 10 Kg	Count	17	17	34
		%	50.0%	47.2%	48.6%
	11 to 15 Kg	Count	17	13	30
		%	50.0%	36.1%	42.9%
	16 to 20 Kg	Count	0	6	6
		%	0.0%	16.7%	8.6%
Total		Count	34	36	70
		%	100.0%	100.0%	100.0%

Chi-Square Tests			
	Value	df	P-Value
Pearson Chi-Square	10.059	3	0.018
N of Valid Cases	70		



Since one of the variable (Breast Feeding Initiation) is qualitative (binary). Chi-Square test is carried out to test association.. From above table, we can observe that, P-Value is less than 0.05. Hence, we can conclude that, there is significant association between breast feeding initiation and IFI Scale Score.

			Breast Feeding Initiation		Total
			Delayed	On Time	
IFI Scale Score	0	Count	6	0	6
		%	17.6%	0.0%	8.6%
	1 to 5	Count	4	3	7
		%	11.8%	8.3%	10.0%
	6 to 10	Count	8	5	13
		%	23.5%	13.9%	18.6%
	11 to 16	Count	16	28	44
		%	47.1%	77.8%	62.9%
Total		Count	34	36	70
		%	100.0%	100.0%	100.0%

12.RESULT

RESULT OF PRE-PREGNANCY BMI:

- Out of 70 females, 14 females were with pre pregnancy BMI <18.5 out of those 8 initiated breast feeding on time and in 6 females it was delayed .
- 30 females were with pre -pregnancy BMI between 18.5-24.9 . Out of them, 19 initiated breastfeeding on time and in 11 females it was delayed.
- 14 females were with pre pregnancy BMI between 25-29.9 . Out of them , 6 initiated breastfeeding on time and in 8 females it was delayed.
- 12 females were with pre pregnancy BMI >30 . Out of them, 3 initiated breastfeeding on time and in 9 females it was delayed.
- P value is 0.043 i.e. < 0.05 hence there is significant association between breastfeeding initiation and pre pregnancy BMI.

RESULT OF GESTATIONAL WEIGHT GAIN:

- Out of 70 females 34 gained weight between 5-10 kg. out of those, 17 initiated breast feeding on time and in 17 females it was delayed.
- 30 females gained weight between 11-15 kg. out of them ,13 initiated breastfeeding on time and in 17 females it was delayed.
- 6 females gained weight between 16-20 kg and all of them initiated breastfeeding on time.
- The P value is 0.135 i.e. > 0.05 hence there is no significant association between breastfeeding initiation and gestational weight gain.

RESULT OF INTENTION TO BREASTFEED:

- Out of 70 females 6 females had IFI scale score 0. none of them initiated breastfeeding on time.
- 7 females had IFI scale score between 1-5. out of them, 3 initiated breastfeeding on time and in 4 females, it was delayed.
- 13 females had IFI scale score between 6-10. out of them, 5 initiated breastfeeding on time and in 8 females, it was delayed.
- 44 females had IFI scale score between 11-16. out of them, 28 initiated breastfeeding on time and in 16 females, it was delayed.
- The P value is 0.018 i.e. < 0.05 hence there is significant association between breastfeeding initiation and IFI scale score.

13.DISCUSSION

- This study was intended to see the association of pre-pregnancy BMI,gestational weight gain and intentions to breastfeed with breastfeeding initiation among primiparous females.
- The study was conducted on pregnant females between 21-30 age group at 32-40 weeks of gestation.
- The results showed that there is significant association of pre pregnancy BMI ,intention to breastfeed with breastfeeding initiation while there is no significant association of gestational weight gain with breast feeding initiation.
- Studies from higher income countries indicate a decrease in breastfeeding initiation among obese women compared with their normal weight counterparts. ⁽⁵⁾
- Out of the 12 studies reviewed that assessed association between pre-pregnancy BMI and breastfeeding initiation 9 found an association between maternal overweight or obesity and delayed lactogenesis. ⁽¹¹⁾
The possible mechanisms could be:
 - a) Delayed lactogenesis and lower prolactin response to suckling in obese women.
 - b) Adipose tissue could act as a reservoir for steroid hormones then leading to higher progesterone levels in obese women than normal weight. ⁽⁵⁾

- The GWG had no significant effect on breastfeeding initiation.
- The cohort study conducted in US and china found no significant effect of GWG on breastfeeding initiation. ⁽¹³⁾
- The study conducted by Martin and Morrison found significant effect of GWG on breastfeeding initiation. ⁽⁷⁾
- Differences in sample size as well as regional and global breastfeeding behaviour, norms and predictors may explain the differences in result observed in the current study. ⁽⁷⁾
- Intentionality implies the underlying cognitive process of commitment to carry out a specific action at a given time and place and identification of definitive strategies for eliciting, carrying out and reinforcing the behaviour. ⁽¹⁾
- This suggests that intention is a critical basis for intervention and is considered of major motivational significance because it is subject to modification. ⁽¹⁾
- In the previous study conducted in 3 US states at the university of Iowa, breastfeeding intention was the strongest predictor of breastfeeding initiation. ⁽⁶⁾
- Women who reported definite intentions to breastfeed were highly likely to succeed in doing so while women with tentative intentions were less successful and those who were uncertain were still less successful.
- Women who expressed definite intension were 26.6 times more likely to initiate breastfeeding than those with tentative intension. ⁽⁶⁾
- In a study conducted at DUKE UNIVERSITY OF MEDICINE, intension to breastfeed was strongly associated with breastfeeding initiation. ⁽¹²⁾

14.CONCLUSION

- In this study, there was significant association of pre-pregnancy BMI and intentions to breastfeed with breastfeeding initiation.
- There was no significant association of GWG with breastfeeding initiation.

15.LIMITATIONS

- Small sample size.
- No quantitative measure for breastfeeding initiation.
- IFI scale was translated verbally.

16.FUTURE SCOPE OF STUDY

- It can further be studied on larger population.
- Data obtained from study can be used for educating and managing weight of the females who are planning to conceive.
- It can be studied on rural population.
- Study can be conducted considering the socioeconomic status of the sample population.

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