



# “A Study To Assess The Effectiveness Of An Information Booklet On Knowledge Regarding Foetal Well Being Measures Among Prim Gravidas In A Selected Hospital At Udaipur District”

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**Abstract:** The study aimed to assess the effectiveness of an information booklet on improving the knowledge of primigravidas regarding foetal well-being measures. A total of 30 primigravidas were selected using a non-probability purposive sampling technique from Pannadhay Zanana Hospital in Udaipur. The research used a pre-experimental one-group pre-test post-test design, with a structured knowledge questionnaire consisting of 30 items on various foetal well-being measures. The findings revealed a significant increase in knowledge scores post-intervention, with a mean pre-test score of 9.73, which rose to 15.97 after the intervention. The paired t-test analysis showed a significant difference ( $t = 14.696$ ,  $p < 0.05$ ), confirming the effectiveness of the booklet. However, no significant association was found between demographic variables (age, education, family income, area of residence, and occupation) and pre-test knowledge scores. Ethical approval and informed consent were obtained before data collection. The study highlights the potential of educational interventions like information booklets in enhancing maternal knowledge and promoting better foetal health outcomes. It is recommended that similar interventions be integrated into routine antenatal care to support informed decision-making among pregnant women.

**Index Term:** Assess; Effectiveness; Information Booklet; Foetal Well Being Measure; Prim-gravidas.

## I. INTRODUCTION

Pregnancy is a joyful yet anxious phase, especially for primigravidas who are naturally concerned about their baby's health. Foetal deaths mostly occur during the antepartum period due to factors like chronic hypoxia, maternal conditions (e.g., diabetes, hypertension), infections, and congenital anomalies. Monitoring foetal wellbeing is crucial and involves methods such as maternal observation of foetal movements, fundal height measurement, ultrasonography, non-stress tests (NST), and routine antenatal checkups. Foetal movement counting is a simple yet powerful method where the mother tracks movements like kicks and rolls, ideally feeling 10 within two hours. Changes in these patterns can indicate distress. Ultrasonography, including Doppler and transvaginal scans, helps assess foetal position, anomalies, and amniotic fluid. NST monitors foetal heart rate variability to detect oxygenation status. Maternal weight gain, abdominal girth, and routine tests (blood and urine) are essential in ensuring a healthy pregnancy. A study in Amritsar confirmed that implementing daily foetal movement count (DFMC) eliminated foetal losses. Despite the availability of advanced technology, there is a need for balancing clinical care with education and awareness. Research in Sweden showed most pregnant women prefer continuity of care and standard checkup schedules. A Sovenga study revealed that many mothers lacked awareness about the significance of foetal movement patterns. Poor maternal knowledge contributes to perinatal risks. The investigator's personal observations showed that primigravidas often lack essential information on foetal wellbeing measures. Thus, an information booklet was developed to bridge this gap and promote healthy outcomes among pregnant women in a selected hospital of Udaipur.

### 1.1. PROBLEM STATEMENT

“A Study to Assess the Effectiveness of an Information Booklet on Knowledge Regarding Foetal Well Being Measures Among Prim Gravidas in a Selected Hospital at Udaipur District”

### 1.2. OBJECTIVES

- To determine the pre-test level knowledge of primigravidas regarding foetal wellbeing measures as measured by a structured knowledge questionnaire.
- To evaluate the effectiveness of information booklet on foetal wellbeing measures as measured by a structured knowledge questionnaire in terms of gain in mean post-test knowledge score.
- To find the association between mean pre-test knowledge score and selected demographic variables (age, education, family income, area of residence and occupation).

### 1.3. HYPOTHESIS

- **H<sub>1</sub>**:- The mean post-test knowledge score of primigravidas regarding foetal wellbeing measures will be significantly higher than their mean pre-test knowledge score.
- **H<sub>2</sub>**:- There will be significant association between the mean pre-test knowledge score and selected demographic variables

### 1.4. CONCEPTUAL FRAMEWORK

The present study aims to evaluate the effectiveness of an information booklet in enhancing knowledge on foetal well-being measures among primigravidas. General Systems Theory views an individual as a system that continuously interacts with its environment through input, process, output, and feedback.

- **Input:** Refers to the demographic variables of primigravidas (age, education, income, residence, occupation) that influence learning.
- **Process:** Involves exposure to the information booklet, which enhances knowledge, stimulates interest, and encourages seeking further information from external sources like media, family, or healthcare providers.

- **Output:** Represents the change in knowledge levels post-intervention, measured through post-test scores.
- **Feedback:** Post-test scores serve as feedback to evaluate the effectiveness of the booklet. High scores suggest effectiveness, while low scores indicate the need for alternative strategies.
- **Environment:** Includes interpersonal relationships and external influences (e.g., family, community, healthcare professionals) that can impact the learning process.

## 1.5. VARIABLES

A variable is a characteristic or attribute that differs among staff nurses.

- **Independent Variable:** In this study, independent variable is an information booklet on foetal well-being measures.
- **Dependent Variable:** In this study, dependent variable is knowledge of primigravidas regarding foetal wellbeing measures.
- **Demographic Variable:** In this study the selected demographic variables are age, education, family income, area of residence and occupation.

## 1.6. DELIMITATIONS

- Primigravidas of second/ third trimester who attend the antenatal OPD in a selected hospital of Udaipur district and are admitted to the same hospital at the time of data collection.
- Generalization is not possible due to small sample size.

## II. MATERIALS AND METHOD

**2.1. Research Approach:** A quantitative evaluative approach was used in the study.

**2.2. Research Design:** The pre-experimental one group pre-test post-test research design was adopted to assess the knowledge regarding foetal well being measures among primigravidas.

**2.3. Sample:** The sample comprised 30 primigravidas of Pannadhay zanana hospital who fulfilled the inclusion criteria.

**2.4. Sampling Technique:** The samples were selected through a non-probability purposive sampling technique.

### 2.5. Criteria for Sample Selection

#### ❖ *Inclusion criteria:*

- Primigravidas of second/third trimester in the selected hospital of Udaipur who are willing to participate in the study.
- Primigravidas who can read or write Hindi or English

#### ❖ *Exclusion criteria:*

- Primigravidas of first trimester and multiparas in the selected hospital of Udaipur.
- Primigravidas who are not willing to participate in the study.

**2.6. Setting:** The study was conducted in antenatal wards of Pannadhay Zanana Hospital, Udaipur at Rajasthan.

**2.7. Population:** The population included primigravidas mothers from Pannadhay zanana hospital.

## 2.8. Description of tool: It consisted of two parts:

- **Part A: Demographic Variables** – This section included variables such as age, education, family income, area of residence and occupation.
- **Part B: Structured Questionnaire** – This section assessed knowledge by structured knowledge questionnaire on foetal well being measures that consisted of 30 questions on different foetal well being measures such as foetal movement count, ultrasonography, non stress test, maternal weight, abdominal girth, and antenatal visits.

## 2.9. Ethical consideration:

Ethical approval was obtained from the Institutional Ethical Committee. Permission to conduct the study was also obtained from the selected hospitals in Rajasthan. Written informed consent was taken from sample before data collection.

## 2.10. Plan for data analysis: The data were analyzed using descriptive and inferential statistics as follows:

- **Descriptive Statistics:** Frequency, percentage, mean, and standard deviation.
- **Inferential Statistics:**
  - t- test – To determine the effectiveness of an information booklet by comparing pre-test post-test knowledge score.
  - Chi-square test – To determine associations between selected demographic variables and burden levels.

## III. RESULTS

The data obtained are divided into sections for easy and accurate interpretation of data. The data finding has organized under the following section:

**Section I:** Distribution of sample based on demographic variables.

**Section II:** Assessment of the knowledge level of primigravidas regarding foetal well being measures.

**Section III:** Evaluation of the effectiveness of an information booklet on primigravidas in terms of gain knowledge.

**Section IV:** Association between the mean pre-test knowledge score and selected demographic variables.

### SECTION I: DISTRIBUTION OF SAMPLE BASED ON DEMOGRAPHIC VARIABLES:

The demographic data consists of 05 items seeking information about the age, education, family income, area of residence and occupation.

**Table-1: Description of sample based on demographic variables**

N = 30

S.N.	DEMOGRAPHIC VARIABLE	FREQUENCY (N)	PERCENTAGE (%)	
1	Age of the Mother	Below 20 years	4	13.00
		20–29 years	23	77.00
		30–39 years	3	10.00
2	Educational Status	Primary School	8	27.00
		Middle School	5	17.00
		High School	13	43.00
		P.U.C	4	13.00
		Graduate & Postgraduate	0	0.00
3	Family Income per	≤2000	18	60.00

	Month	2001–4000	7	23.33
		4001–6000	4	13.33
		≥6001	1	3.33
4	Area of Residence	Rural	30	100.00
		Urban	0	0.00
5	Occupation	Housewife	21	70.00
		Unskilled	4	13.00
		Non-professional	5	17.00
		Professional	0	0.00

Table-1 presents the demographic distribution of the sample included in the study (N = 30) based on various factors such as age, education, family income, area of residence and occupation.

**1. Age of the Mother:** The majority of the primigravidas 23 (77%) were in the age group of 20–29 years, which is considered the most common and ideal reproductive age. A smaller number of mothers (4 (13%)) were below 20 years, indicating early pregnancies that may carry higher risks. Only 3 (10%) of the participants belonged to the 30–39 years age group, reflecting fewer late pregnancies in this study. This distribution shows that most participants fall within the optimal reproductive age.

**2. Educational Status of the Mother:** Among the participants, 13 (43%) had completed high school education, followed by 8 (27%) with primary school education. 5 (17%) had studied up to middle school, and 4 (13%) had completed P.U.C (Pre-University Course). Interestingly, none (0%) of the participants were graduates or postgraduates, indicating low levels of higher education. This suggests that the majority of mothers had only basic to moderate education, which could affect their ability to understand and apply health-related knowledge.

**3. Family Income per Month:** A significant proportion of the participants 18 (60%) had a monthly family income of  $\leq 2000$ , indicating lower socioeconomic status. 7 (23.33%) had income in the range of 2001 – 4000, while 4 (13.33%) earned between 4001 – 6000. Only 1 (3.33%) participant reported a monthly income of  $\geq 6001$ , showing that only a small fraction belonged to higher-income households. This economic profile suggests limited access to healthcare and educational resources for the majority.

**4. Area of Residence:** All the participants 30 (100%) were from rural areas, and none (0%) were from urban settings. This indicates the study was exclusively focused on a rural population. Rural settings often face challenges such as limited access to healthcare facilities, health education, and antenatal care services, underscoring the importance of targeted educational interventions like the information booklet used in this study.

**5. Occupation:** Most of the participants 21 (70%) were housewives, implying they are primarily homemakers and may have more availability to engage in educational sessions. 4 (13%) were involved in unskilled work, while 5 (17%) were engaged in non-professional occupations. There were no participants (0%) working in professional roles. This suggests a limited level of employment and economic independence among the participants, which could influence their access to healthcare and information-seeking behavior.

## SECTION II: ASSESSMENT OF THE KNOWLEDGE LEVEL OF PRIMIGRAVIDAS REGARDING FOETAL WELL BEING MEASURES:

This section presents the findings related to the knowledge level of primigravida regarding foetal well-being measures before and after the administration of an information booklet. The analysis includes the distribution of knowledge scores and the area-wise comparison of pre-test and post-test mean scores to evaluate the effectiveness of the intervention.

**Table-2: Frequency and percentage distribution of samples according to level of knowledge score**

N = 30

Knowledge Score	Category	Pre-test		Post-test	
		Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
0–7	Poor	3	10.00	0	0.00
8–15	Average	27	90.00	11	36.67
16–22	Good	0	0.00	19	63.33
23–30	Excellent	0	0.00	0	0.00
<b>Maximum Score</b>		<b>30</b>	<b>100.00</b>	<b>30</b>	<b>100.00</b>

The table-2 shows that during the pre-test, the majority of participants 27 (90.00%) scored within the average category (8–15), while only 3 (10.00%) were in the poor category (0–7). Notably, none of the participants scored in the good or excellent categories before the intervention. However, after the administration of the information booklet, a significant improvement was observed. The number of participants in the good category (16–22) increased to 19 (63.33%), while 11 (36.67%) remained in the average category. No participants fell into the poor or excellent categories post-test. This indicates a positive shift in knowledge levels following the intervention.

**Table-3: Area-wise means percentage of pre-test and post-test knowledge scores**

Area	Max. Score	Pre-test		Post-test		Actual Gain
		Mean	Mean %	Mean	Mean %	
Definition and purposes	2	0.90	45.00	1.40	70.00	0.5
Foetal movement count and ultrasonography	10	3.57	35.70	5.30	53.00	1.73
Non stress test	5	1.33	21.25	2.53	50.66	1.2
Weight gain and abdominal girth	6	1.67	27.83	3.20	53.33	1.53
Antenatal checkups, blood tests, and urine tests	7	2.26	32.43	3.54	50.43	1.26
<b>Total</b>	<b>30</b>	<b>9.73</b>		<b>15.97</b>		<b>6.22</b>

This table-3 presents a detailed comparison of pre-test and post-test scores in five key knowledge areas. In the area of “Definition and purposes,” the mean score increased from 0.90 (45.00%) to 1.40 (70.00%), reflecting a gain of 0.50.

In “Foetal movement count and ultrasonography,” the pre-test mean score was 3.57 (35.70%) which rose to 5.30 (53.00%) in the post-test, showing an improvement of 1.73. Similarly, in “Non-stress test,” participants' scores improved from 1.33 (21.25%) to 2.53 (50.66%), resulting in a gain of 1.20.

For “Weight gain and abdominal girth,” the mean score improved from 1.67 (27.83%) to 3.20 (53.33%), a gain of 1.53. Lastly, in the area of “Antenatal checkups, blood tests, and urine tests,” scores rose from 2.26 (32.43%) to 3.54 (50.43%), indicating a gain of 1.26.

The total mean score increased from 9.73 in the pre-test to 15.97 in the post-test, showing an overall actual gain of 6.22, clearly indicating the effectiveness of the information booklet in enhancing knowledge regarding foetal well-being measures among primigravida.

### SECTION III: EVALUATION OF THE EFFECTIVENESS OF AN INFORMATION BOOKLET ON PRIMIGRAVIDAS IN TERMS OF GAIN KNOWLEDGE:

This section presents the statistical evaluation of the effectiveness of the information booklet administered to primigravidas. The evaluation is based on the comparison of pre-test and post-test knowledge scores using paired 't' test analysis. The goal was to assess whether the information booklet led to a significant improvement in the participants' knowledge regarding foetal well-being measures.

**Table-4: Mean score, mean difference, SD of difference and 't' value of pre-test and post-test scores**

N = 30

Test	Mean Score	Mean Difference	SD of Difference	Standard Error (SE)	Calculated 't' Value	Inference
Pre-test	9.73	6.233	2.323	0.424	14.696**	Significant
Post-test	15.97					

df=29, Tabulated t-value=1.699

The table-4 displays the comparison between the pre-test and post-test mean knowledge scores of 30 primigravida women regarding foetal well-being measures. The mean score before the intervention was 9.73, which increased to 15.97 after the administration of the information booklet. The mean difference observed was 6.233, with a standard deviation of difference of 2.323 and a standard error of 0.424. The calculated 't' value was 14.696, which is significantly higher than the tabulated *t* value of 1.699 at  $df = 29$  ( $p < 0.05$ ). This confirms that the increase in knowledge is statistically significant. Thus, it can be concluded that the information booklet was effective in enhancing the knowledge of primigravidas regarding foetal well-being measures.

### SECTION IV: ASSOCIATION BETWEEN THE MEAN PRE-TEST KNOWLEDGE SCORE AND SELECTED DEMOGRAPHIC VARIABLES:

This section focuses on examining the association between the pre-test knowledge scores of primigravidas regarding foetal well-being measures and selected demographic variables. The chi-square test was used to determine if there was a statistically significant relationship between the mean knowledge scores and variables such as age, educational status, family income, area of residence, and occupation.

**Table-5: Association between the pre-test knowledge score and selected demographic variables**

N = 30

S. N.	Demographic Variable	df	Tabulated value (0.05 level)	Calculated Chi-square ( $\chi^2$ )	Inference
1	Age of the Mother	2	5.991	0.6910	NS
2	Educational Status	4	9.488	1.7860	NS
3	Family Income per Month	3	7.815	1.6750	NS
4	Area of Residence	1	3.841	0.00	NS
5	Occupation	3	7.815	0.3125	NS

S = Significant or NS = Non Significant

The table-5 shows that the findings revealed that none of the demographic variables had a statistically significant association with the pre-test knowledge scores. For the age of the mother, the calculated Chi-square ( $\chi^2$ ) value was 0.6910 with 2 degrees of freedom ( $df = 2$ ), which is less than the tabulated value of 5.991, indicating it is not significant. Similarly, for educational status,  $\chi^2 = 1.7860$  ( $df = 4$ , tabulated value = 9.488); for family income,  $\chi^2 = 1.6750$  ( $df = 3$ , tabulated value = 7.815); for area of residence,  $\chi^2 = 0.0000$  ( $df = 1$ , tabulated value = 3.841); and for occupation,  $\chi^2 = 0.3125$  ( $df = 3$ , tabulated value = 7.815). Since all calculated  $\chi^2$  values are lower than the corresponding tabulated values, there is no statistically significant association between these variables and the pre-test knowledge score.

#### IV. DISCUSSION

The study aimed to assess the effectiveness of an information booklet on improving the knowledge of primigravidas regarding foetal well-being measures. A total of 30 primigravidas were selected using a non-probability purposive sampling technique from Pannadhay Zanana Hospital in Udaipur. The research used a pre-experimental one-group pre-test post-test design, with a structured knowledge questionnaire consisting of 30 items on various foetal well-being measures. Demographic data showed that the majority of participants (77%) were aged between 20–29 years, 43% had completed high school, and 60% had a monthly income of ₹2000 or less. All participants (100%) resided in rural areas, and 70% were housewives, highlighting the need for health education in underserved communities. Pre-test results revealed that 90% had average knowledge and 10% had poor knowledge. Post-test findings showed significant improvement, with 63.33% scoring in the good category and none in the poor category. The mean knowledge score increased from 9.73 to 15.97 after the intervention, with an actual gain of 6.22 points. The highest improvement was observed in the area of fetal movement count and ultrasonography, followed by weight gain and abdominal girth monitoring. A paired t-test showed a highly significant difference ( $t = 14.696$ ,  $p < 0.05$ ), confirming the effectiveness of the information booklet. Area-wise analysis also reflected improvement in all five domains. No participants achieved excellent scores, indicating scope for further education. Chi-square analysis showed no significant association between knowledge and demographic variables, suggesting that baseline knowledge was uniformly low across groups. The findings support the importance of structured educational tools in improving maternal awareness. The study concludes that an information booklet is an effective method to enhance knowledge among rural primigravidas. These results emphasize the need for integrating such educational interventions in antenatal care programs. Overall, the study demonstrates that targeted health education can significantly empower expectant mothers.

#### V. CONCLUSION

The study concluded that the information booklet significantly improved the knowledge of primigravidas regarding foetal well-being measures. The post-test scores demonstrated a considerable gain in knowledge, highlighting the effectiveness of the intervention. Despite no significant association between demographic variables and knowledge scores, the overall improvement underscores the value of educational materials in antenatal care. The findings suggest that information booklets can be an effective tool in promoting better maternal health outcomes. Therefore, incorporating such interventions into routine antenatal care is recommended.

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#### VII. REFERENCES

1. Dutta, D. C. (2004). Textbook of obstetrics including perinatology and contraception (6th ed.). New Central Book Agency.
2. Pillitteri, A. (2007). Maternal and child health nursing: Care of the childbearing and childbearing family (5th ed.). Lippincott Williams and Wilkins.
3. Jassawalla, M. J. (2011). Fetal movement counts: Interpretation and action. *The Journal of Obstetrics and Gynaecology of India*, 61(2), 141-143.
4. Santhi, M. D. (2011). Non-stress test. *Health Action*, 29-31.
5. Gunareesh, S. (2009). DFMC chart: An inexpensive way of assessing fetal well-being at home. *The Journal of Obstetrics and Gynaecology of India*, 59(3), 217-219.
6. Gabbe, S. G., & Jennifer, N. R. (2002). Textbook of obstetric normal and problem pregnancies. Churchill Livingstone.

7. Maputle, M. S., & Mothiba, M. T. (2006). Mothers' knowledge of fetal movements monitoring during pregnancy in relation to perinatal outcome. *Health Action*, 11(2).
8. Schmidt, W., & Cresch, I. (1984). Maternal perception, tocodyanometric findings, and real-time ultrasound assessment of total fetal activity. *International Journal of Gynaecology & Obstetrics*, 22, 85-90.
9. Talbot, L. A. (1995). *Principles of nursing research*. Mosby.
10. Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed.). Wishwa Prakasham

