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THE EFFECTIVENESS OF PRENATAL EDUCATIONAL INTERVENTIONS IN SHAPING CHILDBIRTH PREFERENCES AND IMPROVING BIRTH OUTCOMES

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ABSTRACT

Background: The preferred mode of childbirth can greatly affect both maternal and birth outcomes. This research measures the effect of a prenatal intervention on childbirth mode preferences and outcomes.

Methods: A quasi-experimental pre-test post-test control group design study is conducted on 40 Participants selected by a convenient non-probability sampling technique & randomly allocated into experimental (n=20) and control (n=20) groups. The intervention included structured prenatal education sessions. Data were analyzed using chi-square tests and descriptive statistics.

Results: Preference for vaginal birth increased from 25% to 70% post-intervention. In the experimental group, 75 % of antenatal mothers delivered between 36–40 weeks of Gestation vs. 60% in the control group. Normal delivery rates were higher in the experimental group (45% vs. 35%).

Conclusion: The research demonstrates that prenatal education significantly influences birth preferences and enhances surgical outcomes. Further research should look into the long-term effects on maternal and neonatal health.

KEYWORDS: Effects, Prenatal Intervention, childbirth mode preference, Birth outcome

INTRODUCTION

The mode of childbirth is an important determinant of maternal and neonatal health, considering factors like recovery and postpartum well-being are best observed after vaginal deliveries as compared to caesarean sections. There has been a global rise in caesarean deliveries over the past years, most often performed without absolute medical necessity. Current statistics suggest that the rate of caesarean sections is on the rise, expected to reach around 28.5% of all births by 2030. In certain areas like Eastern Asia, caesarean rates are projected to reach 63.4%, which raises concerns regarding the increased reliance on surgical procedures during childbirth.

Despite advances in medical science, maternal and neonatal health continue to be an issue of concern internationally. The World Health Organization (WHO) states that maternal mortality rates declined by 40% from 2000 to 2023, but have severely stagnated, particularly after 2016. In the year 2023 alone, an estimated 260,000 women lost their lives due to pregnancy or childbirth complications, which translates to one maternal death every two minutes globally. Dominating this statistic is Sub-Saharan Africa, where 70% of maternal deaths occur, pointing to an alarming lack of accessible and quality healthcare services.

Prenatal education plays a vital role in shaping maternal childbirth preferences by providing women with essential knowledge about labour physiology, birthing techniques, and coping mechanisms. Studies suggest that structured prenatal education programs can empower women to make informed decisions, increasing their preference for vaginal birth while reducing unnecessary caesarean sections. However, there remains a gap in research exploring how targeted prenatal interventions influence maternal decisions and subsequent birth outcomes.

This study aims to evaluate the effect of a structured prenatal intervention on childbirth mode preference and birth outcomes among pregnant women of selected villages of Vadodara, Gujarat. It further investigates whether sociodemographic characteristics influence these preferences, contributing to a deeper understanding of factors influencing maternal decision-making.

MATERIALS AND METHODS

A quasi-experimental pre-test post-test control group design was used to evaluate the effects of prenatal Intervention on the preference for childbirth methods and birth outcomes. Participants were recruited through the convenient non-probability sampling method and subsequently randomised into the experimental or control group.

Participants and Sampling: The study involved 40 Antenatal mothers divided into two equal groups: experiment (n=20) and control (n=20). Criteria for inclusion required a Primiparous antenatal mother in the third trimester period without a history of complications that would warrant surgical interventions like Caesarean sections. Exclusion criteria included Antenatal mothers having high-risk pregnancies with an immediate need for medical supervision. Intervention: The

experimental group participated in 2-hour structured prenatal education/Intervention that included labour physiology, benefits of vaginal delivery, exercise demonstration, breathing and relaxation methods, postnatal care, and signs of complications that necessitate seeking medical attention.

Data Collection and Analysis: Collection of socio-demographic information, childbirth mode preferences, and Birth outcomes was done through a structured Questionnaire. The most important outcome indicators were changes in preference for vaginal birth after the intervention and observed birth outcomes. Statistical analysis was conducted using chi-square tests to assess the relationship between Childbirth Mode Preference and Socio-demographic variables.

RESULTS

Participant Characteristics

The majority of the sample (65–70%) were housewives, and 60% had at least a secondary education. The majority of participants (45–70%) reported routine prenatal visits, and joint families were prevalent (70%). The distribution of monthly income revealed that 35–45% made between ₹20,001 and ₹30,000.

Impact of Prenatal Intervention on Preferences for Childbirth

Only 25% of the experimental group preferred vaginal birth prior to the intervention, whereas 75% had chosen caesarean section. A notable change took place after the intervention, with the preference for vaginal birth increasing to 70% and the preference for caesarean section decreasing to 30%.

Birth Outcomes

In the birth outcome Gestational Weeks of Pregnancy statistical data show that 40% of the control group and 75% of the experimental group were delivered between 36 and 40 weeks. While the experimental group experienced 45% more normal deliveries than the control group (35%), the control group continued to have a greater frequency of elective Caesarean sections (20%). Furthermore, the experimental group experienced fewer labour and postpartum complications, highlighting the advantages of prenatal Intervention.

Association between Childbirth Preferences and Sociodemographic Factors

Statistical analysis revealed no significant association ($p > 0.05$) between childbirth preference and sociodemographic variables, such as age, education level, occupation type, or previous abortion history. This suggests that psychological interventions play a more influential role than demographic factors in shaping childbirth decisions.

According to statistical analysis, there was no significant correlation ($p > 0.05$) between the childbirth mode preferences and sociodemographic factors such as age, education, Occupation type, or history of abortion. This implies that Prenatal Intervention or education plays a more influential role than demographic factors in shaping childbirth decisions.

Table 1: Frequency and percentage distribution of the Socio-demographic variables in the Experimental and control groups N=40

S. No	Socio-Demographic variables	Experimental group (n=20)		Control Group (n=20)	
		f	%	f	%
1	Age				
	a. 18-23 year	8	40	6	30
	b. 24-29 year	7	35	8	40
	c. 30-35 year	3	15	4	20
	d. More than 36 year	2	10	2	10
2	Level of Education				
	a. No formal education	6	30	4	20
	b. Primary education	6	30	6	30
	c. Secondary education	3	15	5	25
	d. Higher Education (Graduation or above)	5	25	5	25
3	Type of occupation/ physical activity				
	a. Housewife	14	70	13	65
	b. Sedentary or passive or job activity	4	10	6	30
	c. Heavy physical job or labor work	2	10	1	5
4	Family Type				
	a. Nuclear family	9	45	3	15
	b. Joint family	11	55	14	70
	c. Extended family	0	0	3	15
5	Abortion History				
	a. Yes	4	20	5	25
	b. No	16	80	15	75
6	Present Month pregnancy				
	a. 7^{th}	7	35	5	25

	b. 8th	4	20	9	45
	c. 9th	9	45	6	30
7	Antenatal visit				
	a. Regular	9	45	14	70
	b. Irregular	4	20	4	20
	c. No visit	7	35	2	10
8	Height				
	a. Less than 140 cm	3	15	3	15
	b. 141 – 150 cm	8	40	11	55
	c. 151 – 160 cm	9	45	6	30
	d. More than 160 cm	0	0	0	
9	Weight				
	a. Less than 50 kg	8	40	6	30
	b. 51-60 kg	7	35	9	45
	c. 61-70 kg	0	0	0	0
	d. Above 70 kg	5	25	5	25
10	Income in Rupees (Monthly)				
	a. Less than 10,000	3	15	1	5
	b. 10,001 – 20,000	4	20	4	20
	c. 20,001 – 30,000	7	35	9	45
	d. More than 30,000	6	30	6	30

Table 1: Socio-Demographic Variables: Among the 40 participants, the majority (65–70%) were housewives, with secondary education or higher (60%). Joint families were predominant (70%), and most had undergone regular antenatal visits (45–70%). Monthly income varied, with 35–45% earning between ₹20,001–30,000.

Fig.1: Mode of childbirth preference before and after prenatal intervention among mothers in the experimental group N=20

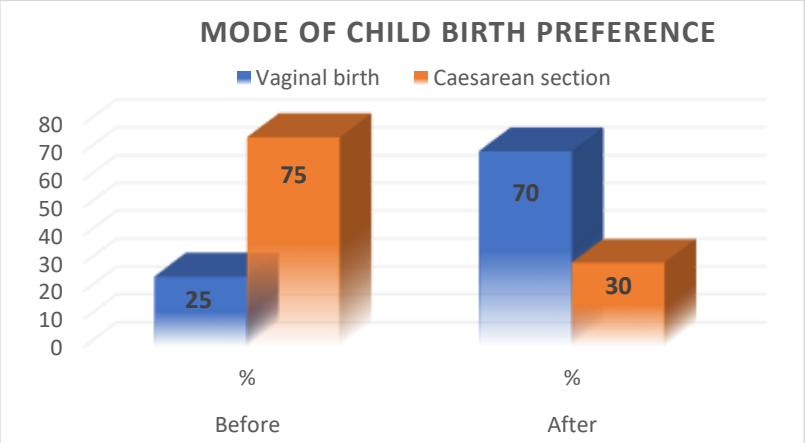

Figure 1: The above graph shows that Preference for vaginal birth increased from 25% to 70% after intervention, while preference for Caesarean section dropped from 75% to 30%, emphasizing how educational support influenced birth choices.

Table 3: comparison of birth outcome after prenatal intervention among mothers in experimental group and control group. N=40

S. No	Socio-Demographic variables	Experimental group (n=20)		Control Group (n=20)	
		f	%	f	%
1	**Gestational week at time delivery**				
	a) Less than 36 weeks.	2	10	3	15
	b) 36 weeks to 40 weeks	15	75	12	60
	c) More than 40 Weeks	3	15	5	25
2	**Delivery Type**				
	a) Normal Delivery	9	45	7	35
	b) Instrumental Delivery	4	20	3	15
	c) Emergency Caesarean Section	4	20	6	30
	d) Elective Caesarean Section	3	15	4	20
3	**Complications During Labour**				
	a) Yes	5	25	6	30

	b) No	15	75	14	70
4	**Postpartum Complication**				
	a) Yes	1	5	0	0
	b) No	19	95	20	100
5	**Newborn Complications at birth**				
	a) Yes	3	15	4	20
	b) No	17	85	16	80

Table 3: Birth Outcomes: Gestational age data showed 75% in the experimental group delivered between 36–40 weeks, compared to 60% in the control group. Normal deliveries were higher in the experimental group (45%) compared to the control group (35%), while elective Caesarean sections remained more frequent in the control group (20%).

Table 4: Association between pre-test modes of childbirth preference among mothers with their selected demographic variables in the experimental group. N=20

Demographic variables	**Mode of child birth**		**χ2 value**	**df**	**P value**
	Vaginal	**Caesarean section**			
Age					
a. 18-23 Year	0	8	4.635	3	0.201^{NS}
b. 24-29 Year	3	4			
c. 30-35 Year	1	2			
d. More than 36 Year	1	1			
Level of Education					
a. No formal education	2	4	4.889	3	0.180^{NS}
b. Primary education	1	5			
c. Secondary education	2	1			
d. Graduation and above	0	5			
Type of occupation/ physical activity					
a. Housewife					
b. Sedentary or passive or job activity	3	11	0.762	2	0.683^{NS}
c. Heavy physical job or labor work	1	3			
	1	1			
Family Type					
a. Nuclear family	2	7	0.067	1	0.795^{NS}
b. Joint family	3	8			
c. Extended family	--	--			
Abortion History					
a. Yes					
b. No	2	2	1.667	1	0.197^{NS}
	3	13			
Present Month pregnancy					
a. 7^{th}	2	5	0.085	2	0.959^{NS}
b. 8^{th}	1	3			
c. 9^{th}	2	7			
Antenatal visit					
a. Regular	2	7	0.085	2	0.959^{NS}
b. Irregular	1	3			
c. No visit	2	5			
Height					
a. Less than 140 cm	1	2	1.111	2	0.574^{NS}
b. 141 – 150 cm	1	7			
c. 151 – 160 cm	3	6			
d. More than 160 cm					
Weight					
a. Less than 50 kg	2	6	0.114	2	0.944^{NS}
b. 51-60 kg	2	5			
c. 61-70 kg	--	--			
d. Above 70 kg	1	4			
Income in Rupees (Monthly)					
a. Less than 10,000	0	3	5.524	3	0.137^{NS}
b. 10,001 – 20,000	2	2			

c. 20,001 – 30,000	3	4			
d. More than 30,000	0	6			

***P<0.05 level of significance NS-Non significant**

Table 4: Association Between Childbirth Preference and Socio-Demographics variables: No significant associations ($p>0.05$) were found between childbirth preference and demographic variables, indicating that psychological interventions influence birth choices more than basic sociodemographic factors.

DISCUSSION

The findings of this study are by previous studies suggesting how prenatal education may enhance delivery outcomes as well as birth choices. Prenatal education significantly improved mothers' attitudes and knowledge about the delivery method, increasing their preference for a vaginal delivery, as per study by El-shrqawy et al. (2024). Similarly, a systematic review by Athinaidou et al. (2024) demonstrated that prenatal education reduces feelings of anxiety and fear associated with childbirth while increasing self-efficacy and preference for unmedicated vaginal birth. These outcomes support the findings from the current study, which found that the preference for vaginal delivery increased from 25% to 70% following the intervention.

Sipahi's (2020) study also assessed the impact of childbirth education on the modes of childbirth preferences of nulliparous women. The study found a correlation between prenatal education participation and a lower rate of caesarean sections, even though the difference was not statistically significant. This implies that while prenatal education plays a major role in influencing mothers' preferences, other factors, such as institutional policies and advice from healthcare providers, may also affect the mode of delivery.

The present study offers additional evidence in favour of the theory that psychological readiness and educational interventions have a greater impact on childbearing preference than sociodemographic factors. Prenatal education will empower women to make their own decisions, as evidenced by the lack of a significant correlation between demographic factors and childbirth mode preferences.

The long-term impacts of prenatal education on mother and newborn health outcomes should be investigated in future studies, especially in different communities and healthcare environments. Increasing the scope of prenatal education programs as part of standard prenatal care could help lower the number of unnecessary caesarean procedures and encourage safer childbirth practices.

Conclusion:

According to the study, systematic prenatal education significantly affects preferences for delivery methods, increasing the rate of vaginal deliveries and lowering the rate of unnecessary caesarean sections. The findings indicate that psychological preparedness, not sociodemographic factors, influences a mother's decision of childbirth mode preference. To encourage safer delivery methods, promote maternal confidence, and enhance birth outcomes, prenatal education can be integrated into standard prenatal care.

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