Induction of labour; repeat cycle of induction, smoking , indications and demographic factors

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Objective:

The aim of the study was to find out if repeat cycle of induction will enhance the unassisted delivery. Moreover, if we can find any relationship between smoking and the failure of induction as smoking interfere with metabolism of the prostaglandins.

Means, standard deviations, skewness, and kurtosis are reported for gestational age, maternal age, BMI, and Bishop score .

Design:

The sample of 252 women who had IOL in Basildon University Hospital in 2021.
We want to address these questions:

1. If there is any difference in type of delivery between those who have had a repeat cycle of IOL compared to those who have not?

2. If there was a difference in type of delivery depending on IOL method?

3. 3a. Is there a relationship between prostaglandins and at least one partner smoking?
3b: Does smoking moderate the relationship between prostaglandins and type of delivery?

4. Do demographic factors predict type of delivery?

5: When examining the sample rates for all three types of delivery, is there a significant difference from the population rates for the hospital?

Method:

Created numeric variables by separating out methods and recoding into numeric for analyses. Prostaglandin variable (yes for either propess or prostin vs neither).Repeated IOL variable (y/n).

Merged across the three months.

Imported data into SPSS.

Created numeric variables

For Q1,Q2, Q3a: Performed a chi-square test .

For Q 3b and Q4: performed a multinomial logistic regression

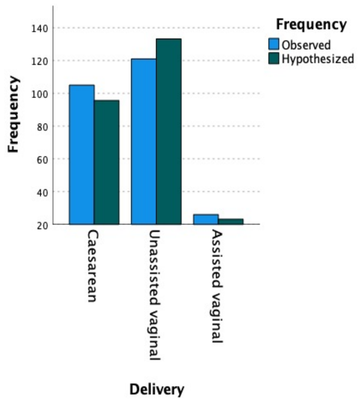

Figure 1 Observed and Hypothesized Delivery Rates

Scales	N	Min	Max	Mean	SD
BMI	231	17.6	56.7	28.918	7.268
Mother Age	246	1 6	46	29.63	5.505
Bishop Score	247	0	6	2.81	1.57
Gestational Age	252	152	309	274.167	15.864

Table 3 Descriptives of Continuous Variables

Table 1 Frequencies of Categorical Study Variables

Variable		N	%
Prostaglandins	Yes	218	86.5
	No	34	13.5
	Total	252	100.0
Repeated	Yes	7	2.8
	No	245	97.2
	Total	252	100.0
ARM used	ARM	137	54.4
	SROM	115	45.6
Delivery	Caesarean	105	41.7
	Unassisted vaginal	121	48.0
	Assisted vaginal	26	10.3
Smoking	At least one smoked	129	51.2
	Neither smoked	88	34.9
	Missing	35	13.9
	Total	252	100.0
Ethnicity	White	209	82.9
	Other	34	13.5

Table 16 Likelihood Ratio Tests for Independent Variables for Overall Model for RQ 4

Variable	-2LL	χ^2	df	p
Intercept	379.960	0	0	.
Mothers Age	390.632	10.672	2	0.005
Bishop	391.35	11.391	2	0.003
BMI	380.747	0.787	2	0.675
Gestational Age	386.167	6.207	2	0.045
Ethnicity	380.024	0.064	2	0.969

Results:

1. There was marginally significant relationship driven primarily by the fact that 85.7% of those who had a repeated IOL cycle had a C-section.

2. No difference in delivery method for those who had ARM compared to those who had SROM.

3. There was a significant difference in delivery method for those who had oxytocin compared to those who had not

4. For those who had SROM, there was no significant difference in delivery method for those who had oxytocin compared to those who had not.

5.There was no evidence for a moderating effect of smoking on the relationship between prostaglandins and delivery type.

6. There were no effect of ethnicity or BMI in predicting delivery, For every year of maternal age increased the odds of delivering by C-section.

7. The most common cause for induction was (Diabetes, GDM), postdate, reduced fetal movements, prolonged rupture of membranes.

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Conclusions:

1. Repeat cycle of induction does not enhance the unassisted delivery, we would suggest finding criteria for repeat cycle of induction and especially for pregnant women who are more than 40 years old.

2. Smoking does not show an interaction with prostaglandins effect, However, further studied needed.

3. There were no effects of ethnicity or BMI in predicting delivery.

4. No difference between delivery rates in the sample compared to the hospital population rates