

A Comparative Study to Assess the Effectiveness of Lithotomy Position Versus Squatting Position on Reduction of Pain During Second Stage of Labour among Primi Mothers in a Selected Hospital at Amroha

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Abstract: *A comparative study to assess the effectiveness of lithotomy position versus squatting position on Reduction of pain during second stage of labour among primi mothers in a selected Hospital at Amroha, U.P., towards partial fulfilment of the requirement for the degree of Master of Nursing at Nightingale Institute of Nursing, Chaudhary Charan Singh University, Meerut (U.P) during the year of 2021-2021. The objectives of the study is to compare the effectiveness of lithotomy position versus squatting position on reduction of pain during second stage of labour among primi mothers in a selected hospital at Amroha , UP. A quasi experimental none-equivalent pre-test post-test design was adopted and non probability Purposive sampling technique was used for selecting the samples for study. The sample consists of 40 primi mothers in second stage of labour (20 in lithotomy position and 20 in squatting position) at Combined district hospital ,Amroha , U.P. The post test and pre test was conducted on the same day . Tools developed and used for data collection were: structured interview schedule and Visual Analogue Pain scale to assess the level of pain in second stage of labour. The data was analyzed and interpreted as per objectives and the research hypothesis stated. Descriptive and inferential statistics were used for data analysis. The results of the study shows that there was significant difference between mean post test scores of primi mothers in lithotomy position group (9.4) and squatting position group (6.7) with the mean difference of (2.4) as obtained unpaired 't' value (71.8) at 0.05 level of significance which is the higher than the table value at df (38). The fisher's exact test value showed that there no significant association between post test score of primi mothers in lithotomy position group and squatting position group with demographic variables as p value obtained is more than 0.05 level of significant. The conclusion of the study revealed that squatting position is more effective than lithotomy position in reduction of pain during second stage of labour among primi mothers.*

Keywords: Lithotomy Position, Squatting Position , Primi Mothers, second stage of labor

I. INTRODUCTION

The pregnancy can be one of the most elated, but on the other hand it is equally fearful stage for a woman to undergo. From the first trimester onwards , many women prepare a plan for themselves that may help them in the time when the fetus will deliver from intrauterine life to the external environment. However, even the most of the well constructed plans often do not come to attainment. During the labour stages strategies can be altered due to complications even intensity of pain can be altered from high to low or vice versa. To prevent such kinds of complications there must be some modifications in birthing strategies. If women combat the physiological events which are natural then the process of birthing can become audous process.

For promoting optimal maternal and neonatal outcomes, women positions in second-stage of labor have potential benefits. During this stage managing maternal positions stage is essential to midwifery practice. Maternal positions serve as the non-medical intervention to facilitate the progress of childbirth suggested by the several evidence-based guidelines. A positive birth can be experienced by performing proper maternal positions which improves potential to bear the painful event that can even retard the negative physiological events and making bearable labor. During the second stage of labor the pain intensity can be reduced, shorten the duration and minimizing the risk of complications by administering positions like lithotomy and squatting positions. Even in obstetric complications these maternal positions can be attained. Contrarily, if mother adopting an unfavorable position it may be a series of negative outcomes and complications arises for mother and fetus.

1.1 Need Of Study

Maternal position during delivery are divided into supine, semi-recumbent, lithotomy, lateral and upright position i.e. standing, sitting, squatting and kneeling. There are many clinical advantages including satisfactory maternal and neonatal outcome, improved perineal integrity, reduce pain intensity, less vulvar edema and less blood loss are profound by adopting squatting position during labour and delivery. Shorter duration of delivery, reduced need of labor augmentation, lower use of analgesics and women's acceptance of these methods of delivery are advantages of alternative methods, with the same level of maternal and neonatal safety as in classic delivery.

1.2 Problem Statement

A comparative study to assess the effectiveness of lithotomy position versus squatting position on Reduction of pain during second stage of labour among primi mothers in a selected Hospital at Amroha.

1.3 Objectives

- To assess the labour pain during second stage of labour among primi mothers in a selected at Amroha, UP.
- To evaluate the effectiveness of lithotomy position on reduction of pain during second stage of labour among primi mothers in a selected hospital at Amroha, UP.
- To evaluate the effectiveness of squatting position on reduction of pain during second stage of labour among primi mothers in a selected hospital at Amroha, UP.
- To compare the effectiveness of lithotomy position versus squatting position on reduction of pain during second stage of labour among primi mothers in a selected hospital at Amroha, UP.
- To determine the association between labor pain after administering lithotomy with the selected demographic variable.
- To determine the association between labor pain after administering squatting with the selected demographic variable.

1.4 Hypothesis

- **H1**-There is a significant difference between the pain in second stage of labour assessment score among primi mothers before and after administration of lithotomy position as measured by visual analogue pain scale at 0.05 level of significant.
- **H2**-There is a significant difference between the pain in second stage of labour assessment score among primi mothers before and after administration of squatting position as measured by visual analogue pain scale at 0.05 level of significant.
- **H3**-There is a significant difference between pain assessment score among primi mothers receiving lithotomy position versus squatting position as measured by visual analogue pain scale at 0.05 level of significant.
- **H4**-There is a significant association between pain among primi mothers after receiving lithotomy position with selected demographic variables at 0.05 level of significant.
- **H5**-There is a significant association between between labour pain among primi mothers after receiving squatting position with selected demographic variables at 0.05 level of significant.

1.5 Assumptions

- Squatting position have more chance on reduction of pain during second stage of labour as compared to lithotomy position.
- Mother of age more than 30 years have more chance on reduction of pain during second stage of labour due to effect of lithotomy and squatting position as compared to women of age 20 - 30 years.

II. RESEACH MEHTOOLGY

Research Approach: Quantitative research design

Research Design: Quasi experimental- non equivalent pre test post test design

Variable

- Attribute variable: Demographic characteristic
- Dependent variable: pain in second stage of labour among primi mothers.
- Independent variable: Lithotomy position and Squatting position.

Study Setting: Selected hospital Amroha ,UP.

Population: Primi mothers in second stage of labour.

Sample And Sample Size: Total- 40

Lithotomy position - 20

Squatting position-20

Sample Technique: Non Probability purposive Sample Technique

2.1 Sampling Criteria

A) Inclusion Criteria

- a) Mothers who were willing to participate in the study.
- b) Mothers who were primi gravida.
- c) Mothers who were in second stage of labor.
- d) Mothers who were not have any complication during pregnancy .

B) Exclusion Criteria

- a) Mothers who were not willing to participate in the study.
- b) Mothers who were multi gravida.
- c) Mothers who were have any complication during pregnancy .
- d) Mother who were have planned LSCS.

2.2 Ethical Consideration

Formal permission was taken from the Principal of Nightingale Institute of Nursing.

- Ethical permission from ethics committee of Nightingale Institute of Nursing.
- Informed written consent was taken from all subjects before administrating lithotomy position and squatting position.
- Anonymity and confidentiality of the participant has been maintained.

2.3 Description of the Tool

Part – 1: Interview schedule for demographic data

This tool was prepared to collect data of primi mothers in second stage of labour in a selected hospital. It consists of age, years of marriage, education, religion , income and do they practiced any antenatal exercise.

Part -2: Visual Analogue Pain Scale

This pian scale was developed to assess the level of pain before and after the intervention. The total maximum rates of pain were 10 (from no pain to worst pain).

2.4 Procedure For Data Collection

Formal administrative permission was obtained from District Combined Hospital, Amroha, UP and data was collected. Data was collected in following steps:

Groups	Day 1 - 23
Lithotomy position Primi mothers in second stage of labour in a hospital.	Pre assessment of pain using Visual Analogue Pain Scale. Administration of Lithotomy position Post assessment of pain using Visual Analogue Pain Scale.
Squatting position Primi mothers in second stage of labour in a hospital.	Pre assessment of pain using Visual Analogue Pain Scale. Administration of Squatting position. Post assessment of pain using Visual Analogue Pain Scale.

III. DATA ANALYSIS AND INTERPETATION

The analysis and interpretation of the data collection to assess the effectiveness of of lithotomy position versus squatting position on Reduction of pain during second stage of labour among primi mothers in a selected Hospital at Amroha , UP. The purpose of analysis is to reduce the data to an interpretable form, so that the research problem can be studied and tested. The research analyst has broken down the data in constituent parts to obtain answer to the research questions and to test the research hypothesis.

3.1 Organization of Analysis

The findings are presented according to the objectives set for the study. The data are organized under the following headings.

SECTION I

- Finding related to frequency and percentage distribution of primi mothers in second stage of labour in terms of demographic variables.

SECTION II

- Finding related to frequency and percentage distribution of pain assessment score before and after administration of lithotomy position .
- Finding related to frequency and percentage distribution of pain assessment score before and after administration of squatting position.

SECTION III

- Finding related to effectiveness of lithotomy position on reduction of pain in second stage of labour among primi mothers.
- Finding related to effectiveness of squatting position on reduction of pain in second stage of labour among primi mothers.

SECTION IV

- Finding related to difference between post interventional score in lithotomy position versus squatting position on reduction of pain during second stage of labour among primi mothers.

SECTION V

- Fisher’s exact test was used to describe the association between the pain in second stage of labour among primi mothers after receiving lithotomy position with selected demographic variables at 0.05 level of significant.
- Fisher’s exact test was used to describe the association between the pain in second stage of labour among primi mothers after receiving squatting position with selected demographic variables at 0.05 level of significant.



SECTION I

Table 2 : Frequency and percentage distribution of primi mothers in second stage of labour in terms of demographic variables.

N=40

S.NO	ITEMS	LITHOTOMY POSITION		SQUATTING POSITION	
		Frequency N=20	Percentage %	Frequency N=20	Percentage %
1	Age in year.....				
	a) 20-25 years.	12	60%	9	45%
	b) 26 to 30 years.	4	20%	9	45%
	c) 31 to 35 years.	4	20%	2	10%
	d) More than 36 years.	0	0%	0	0%
2	Year of marriage....				
	a) Less than 2 year	10	50%	13	65%
	b) 2 - 4 years	9	45%	6	30%
	c) More than 4 years	1	5%	1	5%
3	Educational level...				
	a) No Formal Education	4	20%	1	5%
	b) Primary	5	25%	7	35%
	c) Secondary	5	25%	6	30%
	d) Graduation	5	25%	4	20%
	e) Post Graduation	1	5%	0	0%
4	Religion				
	a) Hindu	8	40%	11	55%
	b) Muslim	8	40%	6	30%
	c) Christian	1	5%	3	15%
	d) Sikh	3	15%	0	0%
	e) others	0	0%	0	0%
5	Monthly Income...				
	a) Less than 5000	7	35%	3	15%
	b) 5001 - 10,000	8	40%	8	40%
	c) more than 10,000	5	25%	9	45 %
6	Do you practiced any antenatal exercises?	4	20%	6	30%
	Yes (specify).....	16	80%	14	70%
	No				

Data presented in Table-2 show that:

- Considering the age in lithotomy position group revealed that maximum of the sample i.e. 12(60%) primi mothers were under the age group of 20-25 years , 4(20%) were under the age group of 26-30 years and 31-35years, Whereas In squatting poistion group it was maximum of the sample 9(45%) primi mothers were under the age group of 20-25 years and 26-30 years ,2(10%) were under the age group 31-35 years.
- Regarding the year of marriage in lithotomy position group majority of the sample i.e. 10 (50%) were in less than 2 years of marriage , 9(45%) were in 2-4 years of marriage and 1(5%) more than 4 years of marriage, whereas in squatting position group majority of the sample i.e. 13 (65%) were in less than 2 years of marriage, 6 (30%) were in 2- 4 years of marriage and 1(5%) more than 4 years of marriage.
- In lithotomy position group maximum educational qualification of the sample i.e. 5(25%) were having primary education , secondary education , graduation , 4(20%) were having no formal education , 1(5 %) were post

graduated, whereas squatting position group in maximum of the sample i.e. 7(35%) were having primary, 6 (30%) were having secondary education and 1(5%) were having no formal education.

- In lithotomy position group majority of the sample of both Hindus and Muslims primi mothers were 8(40%) each, 3 (15%) were Sikhs, and 1(5%) were Christian, whereas in squatting position group majority of the sample i.e. 11(55%) were Hindus, 6(30%) were Muslims and 3(15%) were Christians.
- Considering the monthly income in lithotomy position group revealed that maximum of the sample i.e. 8(40%) were having 5001-10,000 monthly income, 7(35%) were having less than 5000 monthly income and 5(25%) were having more than 10,000 monthly income, whereas squatting position group in maximum of the sample i.e. 9(45%) were having more than 10,000 monthly income, 8(40%) were having 5001-10,000 monthly income and 3(15%) were having 5001-10,000 monthly income.
- Regarding the antenatal exercises majority of samples i.e. 16(80%) in lithotomy position group and 14(70%) in squatting position group were not practiced antenatal exercises, whereas 4(20%) in lithotomy position group and 6(30%) in squatting position group were practiced antenatal exercises.

SECTION-II

DISTRIBUTION OF PRE TEST AND POST TEST SCORE OF PAIN IN SECOND STAGE OF LABOUR AMONG PRIMI MOTHERS IN SQUATTING POSITION

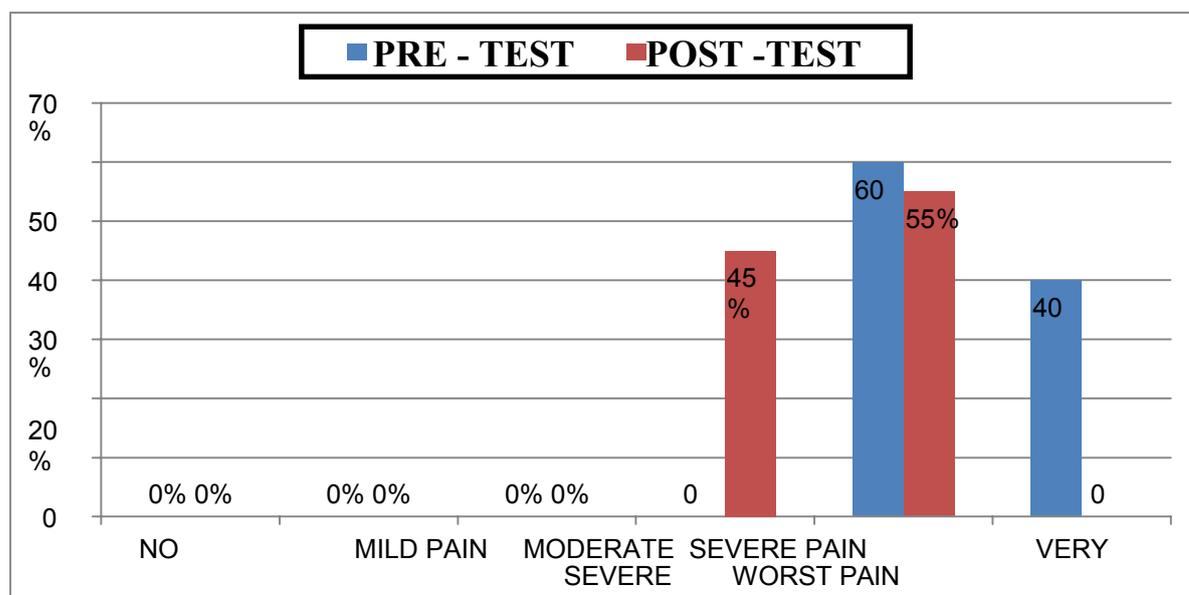


FIGURE 8 : Bar diagram showing distribution of pre test and post test score of pain in squatting position.

SECTION-III

FINDING RELATED TO EFFECTIVENESS OF LITHOTOMY POSITION ON REDUCTION OF PAIN IN SECOND STAGE OF LABOUR AMONG PRIMI MOTHERS

Table 5: Mean, Mean difference, Standard Deviation and “t” value of effectiveness of Lithotomy position on reduction of pain during second stage of labour among primi mothers.

N=20

S.NO	MEAN	MEAN DIFFERENCE	SD	‘t’ VALUE
Pre test	9.3	0.2	0.4	0.5*
Post test	9.1		0.7	

df (19)= 2.09 at 0.05 level of significance

1. The mean Post test pain score of primi mother is (9.1) which is lower than the mean Pre test (9.3), with the mean difference of 0.2.

- The calculated “t” value is 0.5 which is smaller than the table value at 0.05 level of significance at df (19).
- Hence, null hypothesis H01 was accepted and research hypothesis H1 was rejected. It is concluded that the lithotomy position was not effective in reducing the pain during second stage of labour among primi mothers.

FINDING RELATED TO EFFECTIVENESS OF SQUATTING POSITION ON REDUCTION OF PAIN IN SECOND STAGE OF LABOUR AMONG PRIMI MOTHERS

Table 6: Mean, Mean difference, Standard Deviation and “t” value of effectiveness of Squatting position on reduction of pain during second stage of labour among primi mothers.

N=20

S.NO	MEAN	MEAN DIFFERENCE	SD	‘t’ VALUE
Pre test	9.4	2.77	0.48	025.8*
			6.4	
POST TEST	6-7			

df (19)= 2.09 at 0.05 level of significance

- The mean Post test pain score of primi mother is (6.7) which is lower than the mean Pre test (9.4), with the mean difference of 2.7.
- The calculated “t” value is 25.8 which are higher than the table value at 0.05 level of significance at df (19).
- Hence, null hypothesis H02 was rejected and research hypothesis H2 is accepted it is concluded that the squatting position was effective in reducing the pain in second stage of labour among primi mothers.

SECTION IV

FINDING RELATED TO DIFFERENCE BETWEEN POST INTERVENTIONAL SCORE IN LITHOTOMY POSITION VERSUS SQUATTING POSITION ON REDUCTION OF PAIN DURING SECOND STAGE OF LABOUR AMONG PRIMI MOTHERS

Table 7 : Mean, Mean Difference, Standard Deviation and Unpaired “t” value of lithotomy position versus squatting position on Reduction of pain during second stage of labour among primi mothers.

N=40

S.NO	MEAN	MEAN DIFFERENCE	SD	UNPAIRED ‘t’ VALUE
LITHOTOMY POSITION	9.4	2.4	0.7	71.8*
SQUATTING POSITION	6.7		0.64	

df (38)= 2.042 at 0.05 level of significance

Table 7 represents : In Lithotomy position mean post test of pain score (9.4) of primi mothers is more than squatting position mean post test of pain score (6.7) with the mean difference of 2.4 . The obtained mean difference was found to be statistically significant at 0.05 levels. The calculated unpaired ‘t’ value is 71.8 at 0.05 level of significance which is the higher than the table value at df (38).

Hence, it can be inferred that obtained mean difference of 2.4 is not by chance it is a true difference, thus null hypothesis H03 was rejected and research hypothesis H3 accepted .So, it can conclude that squatting position is more effective than lithotomy position in reduction of pain during second stage of labour among primi mothers .



SECTION V

FINDING RELATED TO ASSOCIATION OF POST ASSESSMENT PAIN SCORE IN LITHOTOMY POSITION WITH DEMOGRAPHIC VARIABLES

Table 8: Fisher’s exact test was used to describe the association between the pain in second stage of labour among primi mothers after receiving lithotomy position with selected demographic variables at 0.05 level of significant.

N=20

S. NO	DEMOGRAPHIC DATA	BELOW MEDIAN (<9)	ABOVE MEDIAN (≥9)	‘P’ VALUE	S/NS
1	Age			0.5	NS
	a) 20-25 years.	4	8		
	b) 26 to 30 years.	2	2		
	c) 31 to 35 years.	1	3		
d) More than 36 years.	0	0			
2	Year of marriage.			0.7	NS
	a) Less than 2 years	4	6		
	b) 2 - 4 years	2	7		
c) More than 4 years	0	1			
3.	Educational level...			0.6	NS
	a) No Formal Education	1	3		
	b) Primary	1	4		
	c) Secondary	3	2		
	d) Graduation	4	1		
e) Post Graduation	0	1			
4.	Religion			0.2	NS
	a) Hindu	3	5		
	b) Muslim	3	5		
	c) Christian	0	1		
	d) Sikh	0	3		
e) Others	0	0			
5.	Monthly Income...			0.2	NS
	a) Less than 5000	4	3		
	b) 5001 - 10,000	2	6		
c) more than 10,000	0	5			
6.	Do you practiced any antenatal exercises?	2	2	0.5	NS
	a) Yes (specify).....	4	12		
	b) No				

NS=Not Significant, S= Significant

The data presented in table 8 shows that fisher ‘s exact test value obtained to find out the association between post test score of primi mothers receiving lithotomy position with demographic variables. On computation it was found that there was no significant association between post test score of primi mothers in lithotomy position group with demographic variables as p value obtained is more than 0.05 level of significant. Hence, research hypothesis H₄ is rejected and null hypothesis Ho₄ accepted .



FINDING RELATED TO ASSOCIATION OF POST ASSESSMENT PAIN SCORE IN SQUATTING POSITION WITH DEMOGRAPHIC VARIABLES

Table 9: Fisher’s exact test was used to describe the association between the pain in second stage of labour among primi mothers after receiving squatting position with selected demographic variables at 0.05 level of significant.

N=20

S. NO	DEMOGRAPHIC DATA	BELOW MEDIAN (<7)	ABOVE MEDIAN (≥7)	‘P’ VALUE	S/NS
1	Age				
	a) 20-25 years.	5	4	1.0	NS
	b) 26 to 30 years.	3	6		
	c) 31 to 35 years.	1	1		
d) More than 36 years.	0	0			
2	Year of marriage....			0.6	NS
	a) Less than 2 years	6	7		
	b) 2 - 4 years	2	4		
3.	More than 4 years	1	0	1.0	NS
	Educational level...				
	a) No Formal Education	0	1		
4.	b) Primary Education	2	5	1.0	NS
	c) Secondary Education	4	2		
	d) Graduation	3	1		
	e) Post Graduation	0	0		
	Religion				
a) Hindu	6	5	1.0	NS	
b) Muslim	2	4			
c) Christian	1	2			
d) Sikh	0	0			
e) others	0	0			
5.	Monthly Income...			0.5	NS
	a) Less than 5000	1	2		
	b) 5001 - 10,000	3	5		
6.	c) more than 10,000	4	5	0.6	NS
	Do you practiced any antenatal exercises?	3	3		
	a) Yes (specify).....	6	8		
	b) No				

NS=Not Significant, S= Significant

The data presented in table 9 shows that fisher ‘s exact test value obtained to find out the association between post test score of primi mothers receiving squatting position with demographic variables. On computation it was found that there was no significant association between post test score of primi mothers in squatting position group with demographic variables as p value obtained is more than 0.05 level of significant. Hence, research hypothesis H5 is rejected and null hypothesis Ho5 accepted .

3.2 Implications of the Study

The implication drawn from the present study is of vital concern to the health team including the professional nurse practitioners, nurse administrators, nurse educators and research.

A. Nursing Practice

- The findings of the present study will help the midwives to enlighten their knowledge and practice on alternative positions (lithotomy position and squatting position) on reducing pain during second stage of labour among primi mothers .
- Midwives should be encouraged to use alternative positions (lithotomy position and squatting position) in the labour pain management as these are safe, economic, and not having any side effects.

B. Nursing Education

- Specialized courses like alternative positions on reduction of pain in second stage of labour can also be introduced to train nurse specialists in the area of obstetrics and gynecological nursing.
- Nursing curriculum should include these topics to sensitize the student nurse to provide alternative positions as an effective pain management during second stage of labour among primi mothers .

C. Nursing Administration

- The nursing administration should organize educational programme for the nursing students and nursing staff to update the knowledge related to advanced information regarding alternative positions (lithotomy position and squatting position) on reducing pain during second stage of labour among primi mothers .
- Reading materials, reference books and nursing manuals must be made available for the staff regarding pain interventions during second stage of labour for administering evidenced based practices.
- The administrator must see that every nurse have adequate knowledge and skills in giving regarding alternative positions (lithotomy position and squatting position) on reducing pain during second stage of labour among primi mothers.

D. Nursing Research

- The study provides base line data for conducting other research studies.
- The study will be motivation for budding researchers to conduct a same study on large scale.
- Adequate knowledge, motivation and encouragement by the management and authorities of the organization can enable various research activities. This could be the quest of many novice nurses, when motivated to indulge in research activity could improve the body of knowledge of the profession.

3.3 Limitation

- The study was limited to primi mothers who are in second stage of labour.
- The study was limited to use only two positions in order to reduce pain.
- The study was limited only in U.P. state.

3.4 Recommendation

- A similar study can be conducted with larger sample for better generalization.
- Various other benefits of alternative positions such as improved perineal integrity, less vulvar edema , shorter duration of labour, reduced need of labor augmentation can be tried out.
- A study can be conducted on comparison of alternative positions versus alternative therapies such as reflexology , acupressure, breathing exercises.
- A study can be conducted only any one intervention by using control group.
- A similar study can be done using different research design to see more effectiveness.

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