Effect of doula care on anxiety level among labouring mothers: a quasi-experimental study

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Effect of doula care on anxiety level

Objective: To assess the effectiveness of doula care on level of anxiety among labouring mothers.
Design: Quasi-experimental
Setting: CLR, Nehru Hospital, PGIMER, Chandigarh.
Sample: 120 labouring mothers
Methods: Tools used for data collection was interview schedule composed of socio-demographic and obstetrical profile and state and trait anxiety inventory used for the assessment of anxiety level. The Level of anxiety was assessed in the experimental group after implementing the doula care (psychological support by doula as a birth companion, effleurage massage, breathing exercises, and positioning) and in the control group after giving routine care.
Main outcome measure: level of anxiety
Results: The pre-test showed no difference in anxiety level among both the groups. ($p>0.05$). In the post-test there was significantly low anxiety level in experimental group as compared to control group as shown by Mann-Whitney and Wilcoxon Test ($p<0.05$).
Conclusion It is concluded that doula care is effective in reduction of anxiety during labour.
Funding: None
Keywords: Doula, Doula care, Intra-natal period, effleurage massage.
Clinical trial registry – India, ctri.nic.in/clinicaltrials/login.php. (CTRI/2019/07/020367)

Tweetable abstract: Doula care helps to reduce the level of anxiety during labour.

Introduction:

Labour and delivery process is an exciting, anxiety-provoking, rewarding time for the woman and her family. Mother's anxiety in this period is mostly due to the lack of knowledge and prenatal fear of the unknown risks and childbirth.[1] As a result of fear and anxiety, secretion of stress hormones increases and can lead to pre-term birth, lack of progress, low birth weight of the child and foetal hypoxia[2]. Women's access to health care services, and awareness through education and counselling during pregnancy and childbirth are the important factors for reducing the complications during labour.[3] Taking care of a mother during delivery with no complication is the task of a professional midwife.[4] In a study, researchers found nurses spent only 6-10% of their time engaged in labour-support activities. A subsequent study identified some of the barriers to supportive care cited by nurses as inadequate staffing, the physical environment, and lack of management support. This gap in care clearly provides a place in which doulas can assist in providing optimal intrapartum care.[5]

A Doula also known as a Birth Companion, birth coach or post-birth supporter, is a non-medical person who assists a woman before, during, or after child-birth, to provide emotional support and physical help if needed. They also may provide support to the mother's partner and family. A birth doula is also called a labour doula. Doulas are trained to provide physical, emotional, and informational support to women during labour and in the immediate postpartum period.[6]

Researcher felt that due to shortage of staff, nurses are busy and overburdened in attending labouring mothers for many clinical and administrative tasks besides direct labour support. Hence, Researcher felt that in addition to regular nursing care, the individualized care to meet the one to one continuous emotional and moral support, there was a need to introduce the doula during labour. So, to see the outcomes of doula care, researcher wanted to study the effectiveness of doula care during intra-natal period on reducing anxiety level among labouring mothers.

Material and methods:

A quantitative research approach was used for the present study. The quasi-experimental research study was conducted in Clean Labour Room, Nehru Hospital, PGIMER, Chandigarh. 120 Labouring mothers with 37 to 42 weeks of gestation, who were admitted in the CLR, Nehru Hospital, PGIMER, Chandigarh (July-August 2019) were selected by purposive sampling technique. Ethical approval for the study was obtained from the Institute Ethics committee, PGIMER, Chandigarh. Prior permission was obtained from the department of Obstetrics and Gynaecology, PGIMER, Chandigarh and on duty doctors were also informed. Study was submitted at CTRI (clinical trial registry- India) for registration (CTRI/2019/07/020367).

Tools used for data collection was interview schedule composed of (a) Socio-demographic (b) obstetrical profile and STAI scale. The STAI Scale is standardized scale developed by Charles Spielberg was used to assess the state and trait anxiety. It was available in the open domain for the use of research scholars. It is a 4-point Likert scale which consisted of 20 items which provides measures of state anxiety and 20 for trait anxiety. It is a measure of the

intensity of Anxiety experienced at the time of assessment. Both the state and trait anxiety, out of 20 items 11 items were positive items and 9 negative items. In both the scales, the positive items were scored as not at all-1, somewhat -2, moderately so- 3, and very much so-4. The negative items were scored reversely as not at all- 4, somewhat -3, moderately so-2 and very much -1. The minimum score was 20 and the maximum score was 80. The grading of state and trait anxiety was done as follows: 20: No anxiety, 21-40: Mild level of anxiety, 41-60: Moderate level of anxiety, 61-80: Severe level of anxiety.

In present study the effect of doula which means assisting the women during labour, was assessed on anxiety. Protocol of doula care was developed based on researcher experience and extensive literature review. Doula care was provided from the active phase (3-5cm dilatation) of first stage of labour until immediate postpartum period (1 hr after delivery). It includes orientation of ward, routine care and providing information about the labour process by using a flash book. Continuous emotional and moral support was given by doula by touch therapy, verbal encouragement and physically being present with the mother throughout the birthing process. At the beginning of contraction, the mother was asked to take deep breathing as demonstrated by doula. This was followed by abdominal, back and leg massage as the pain radiates to these areas and finally at the end of contraction the positioning of mother done as per her comfort. After the contraction stop, the mother had taken a deep breath. The steps were again performed by the mother with the help of doula when the next contraction begins. After 4-5 hours of interventions the state anxiety level is reassessed to assess the effectiveness of doula care in reduction of anxiety level.

Content validity of the tool and protocols was confirmed for the completeness, content and language clarity by the experts from the disciplines of Nursing, Obstetrics and Gynaecology and Physiotherapy. The labouring mothers were informed about the purpose of study and written consent was taken from them. Confidentiality was maintained throughout the study. 10 labouring mothers were pilot tested and the tools and protocol were found feasible to apply.

Data collection was started from the month of 25th July to 15 September 2019. As shown in the figure 1 **consort diagram**, total enrolled mothers are 120 as per the exclusion and inclusion criteria. Consent is taken from 120 labouring mothers and was divided into 60 experimental and 60 control group. Doula care was provided to the experimental group, whereas routine care was given to the control group during intra-natal period. Level of anxiety was assessed among experimental and control group. Hence, total 60 labouring mothers in the experimental group and 60 in control group were analysed.

All the participants of control group were enrolled in the beginning of study. The labouring mothers were enrolled as they get admitted in the CLR (OB-1) during latent phase (true onset of labour) of labour and interviewed as per the interview schedule. Trait anxiety and pre-test state anxiety were assessed. They were cared as per routine of labour room. After 4-5 hours of initiation of active phase (3-5cm dilatation) of labour the post-test for state anxiety was taken by using the STAI scale.

In experimental group, labouring mothers were enrolled as they get admitted in the CLR (OB-1) during latent phase of labour. The investigator introduced herself to the labouring mothers and explained them about research study and then, they were interviewed as per the interview schedule. Trait anxiety and pre-test state anxiety were assessed. Then the doula care is provided to the labouring mothers during active phase (3-5cm dilatation) of labour as per protocol. Post-test was taken after the implementation of doula care after 4-5 hours during active phase (3-5cm dilatation) of labour by using STAI Scale.

RESULTS:

Socio-demographic profile of the labouring mothers:

The socio-demographic profile of the 120 labouring mothers is depicted in **table 1** below. The control group labouring mothers belonged to the age group of 16-38years (mean 26 $\pm 0.53\,SD$ ¿ and in the experimental group majority of the labouring mothers belonged to the age group of 19-37 years (mean 27 $\pm 0.52\,SD$). In the control group, about 73% belonged to Hindu religion, 21% were Sikh and only 5% were Muslims and in the experimental group 73% were of Hindu religion, 16% Sikh and only 10% were Muslims. As per the educational status, in the control group 83% were educated up to 8th standard, 46% were metric passed and only 10% were postgraduate whereas, in the experimental group more than 30% were metric passed and only 13% were postgraduate. In the control group majority of the labouring mothers (85%) were home-makers and only 8% were doing the professional jobs and in the experimental group, most of the labouring mothers (80%) were home-maker and belonged to joint family. In the control group, more than half of the labouring mothers' lives in joint family and had Rs. 1501-3500 per capita income whereas, in the experimental group more than 60% had per capita income of 3501-5000rs. About 80% of the labouring mothers were vegetarian in both the groups. The socio-demographic variables of both the groups were homogenous (p value >0.05).

Obstetrical profile of the labouring mothers: Table 2 shows the obstetrical profile of the labouring mothers. In the experimental group majority of the labouring mothers (90%) and control group (90%) attained their menarche at the age of 12-15 years. In the experimental group 90% and in control 81% had gestational age of 37-40 weeks. Half of the labouring mothers were primigravida and half were multigravida in both the groups. in the experimental group 26% and in control 33% of the labouring mothers had duration of marriage of 2-5 years. In the experimental group, more than 70% had weight of 50-70kg and had no history of abortion. whereas, in the control group, more than 60% had weight of 50-70 kg and had no history of abortion.

Trait anxiety among labouring mothers

The figure 2 depicts the trait anxiety among labouring mothers in both the experimental and control group as per STAI scale. In the experimental group, majority of the labouring mothers (92%) in experimental group had mild anxiety and about 8% labouring mothers reported the moderate anxiety, whereas none of the labouring mother had severe anxiety in the experimental group. In the control group about 65% of the labouring mothers reported mild

anxiety, about one fourth of the labouring mother reported moderate anxiety and only 2% reported severe anxiety.

State Anxiety level among labouring mothers

Figure 3 shows the level of state anxiety among labouring mother in control and experimental group. Before implementing doula care protocol, 71.7% of the labouring mothers in the experimental group and 66.7% of the labouring mothers in the control group reported moderate anxiety. Whereas only 3% of the labouring mothers in the experimental group and 5% in control group had severe anxiety. This depicts that, there was no significant difference in anxiety level among both the groups. After implementing the doula care protocol in the experimental group, 56.7% of the labouring mothers reported mild anxiety, 30% reported moderate anxiety and 13.3% of the labouring mothers reported severe anxiety. Whereas, in the control group 45% of the labouring mothers reported moderate anxiety and 31.7% reported severe anxiety. and 23.3% reported mild anxiety. This shows that there was significantly higher anxiety level in control group as compared to experimental group.

Comparison of scores of state anxiety level among labouring mothers

Table 3 shows the comparison of state anxiety level among labouring mothers. There was a significant reduction of anxiety level in the experimental group as compared to control group as shown by Mann-Whitney test. ($p<0.05$). The table also shows the statistically significant reduction in anxiety level in the experimental group before and after the implementation of doula care as compared to control group as shown by the Wilcoxon test ($p<0.05$). Hence, it showed that doula care protocol is effective in reducing the level of anxiety in labouring mothers. The null hypothesis is rejected.

DISCUSSION:

Doula involvement during labour is a cost-effective method to improve outcomes for mothers and infants. This study showed that support provided by doula helps the mother to get relieve from pain and anxiety.

In the present study, as regard to STAI (State and trait anxiety inventory) scale, more than 65% of the labouring mothers in both the groups reported moderate state anxiety. Findings of the study done by Angela Baker (2001) showed that pain sensitivity score levels were mild and moderate in labouring mothers with the same STAI scale[7].

In the present study, as regard to STAI scale, about 25% of the labouring mothers reported severe anxiety which was reduced to 13% after the interventions. whereas, in control group 28% of the labouring mothers reported severe anxiety which was increased to 32%. Similar study was conducted by Fenwicket et.al (2009) on level of fear among pregnant women before and after the birth. they reported that 26% of childbearing women reported mild anxiety about childbirth, 48% had moderate anxiety and 26% of women had severe anxiety[8].

Findings of the present study proved that there was a statistically significant reduction in anxiety level of experimental group as compared to control group. Findings of the study was

supported by the study done by Marzeich Akbar Zadeh (2015), on comparing the doula supportive care and providing acupressure on reducing mother's anxiety level. The significant difference was observed among the groups regarding the mother's anxiety level ($p<0.001$)[9].

CONCLUSION

It can be concluded that doula care protocol is effective in reducing the state anxiety among the labouring mothers. A doula empowers a mother to communicate her needs and perceptions and actualize her dream of a healthy, positive birth experience. There is a need of birth companion to help support, encourage and reassure the woman throughout labour. It is necessary to undertake more research in the field of doula support to achieve holistic care among labouring mothers. So, a similar study can be conducted on complementary therapies verses doula support during labour among labouring mothers.

Disclosure of interest: The researcher wants that there should be some-one who addresses not only the clinical requirements for a safe labour and childbirth but also meets the psychological and emotional needs of labouring mothers. Hence, researcher felt that in addition to regular nursing care, the individualized care to meet the continuous emotional and moral support, there was a need to introduce the doula during labour.

Contribution to authorship: Heena Devi, was responsible for conceiving the project, planning, carrying out, analysing and interpretation of data, writing the manuscript, and approved the final draft. Dr. Sunita Sharma was responsible for approval of final draft and provided guidance throughout the project. Dr. Sukhjit kaur, provided guidance in the form of inspiring instructions and eminent guidance, timely correction, encouragement intelligent and sustained guidance in my pursuit to complete this work. Dr. Pooja Sikka, provided her support, guidance, valuable suggestion, constructive criticism and co-operation throughout the project.

Details of ethics approval: Ethical approval for the study was obtained from the Institute Ethics committee, PGIMER, Chandigarh. Prior permission was obtained from the department of Obstetrics and Gynaecology, PGIMER, Chandigarh and on duty doctors were also informed. Study was submitted at CTRI (Clinical Trial Registry- India) for registration (CTRI/2019/07/020367).

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TABLES

Table 1: Socio-demographic profile of labouring mothers

N=120

Variables	Control group (N=60)	Experimental group (N=60)	χ^2 (df) P value
Age (in years)			
• <18 years	25 (41.7%)	36 (60.0%)	0.416
• 18-35 years	33 (55.0%)	21 (35.0%)	(2)
• >35 years	2 (3.3%)	3 (5.0%)	0.102
Religion			
• Hindu	44 (73.3%)	44 (73.3%)	1.391
• Muslim	3 (5.0%)	6 (10.0%)	(2)
• Sikh	13 (21.7%)	10 (16.7%)	0.552
Education			
• Illiterate	4 (6.7%)	6 (10.0%)	2.327
• Metric	28 (46.7%)	22 (36.7%)	(4)
• Intermediate	5 (83.3%)	3 (5.0%)	0.705
• Graduate	17 (28.3%)	21(35.0%)	
• Post-graduate	6 (10.0%)	8 (13.3%)	
Type of family			
• Nuclear	17 (28.3%)	21 (35.0%)	3.286
• Joint	41 (68.7%)	33 (55.0%)	(2)
• Extended	2 (3.5%)	6 (10.6%)	0.199
Occupation:			
• Home-maker	51 (85.0%)	48 (80.0%)	1.377
• Farmer	4 (6.7%)	3 (5.0%)	(2)
• Professional	5 (8.3%)	9 (15.0%)	0.587
Per capita income			
• 500-1500	10(71.4%)	4(28.6%)	
• 1501-3500	19(71.4%)	8(29.6%)	11.92
• 3501-5000	8(33.3%)	16(66.7%)	(3)
• >5000	23(41.8%)	32(58.2%)	0.110
Type of work			
• Sedentary	1 (1.7%)	1 (1.7%)	1.083
• Moderate	53 (83.6%)	56 (93.3%)	(2)
• Strenuous	6 (10.0%)	3 (5.0%)	0.743%
Dietary pattern			
• Vegetarian	48 (80.0%)	48 (80.0%)	0.000
• Non-vegetarian	12 (20.0%)	12 (20.0%)	(1)
			1.000

Table -2: Obstetrical Profile of labouring mothers

Obstetrical profile	Experimental group (N=60)	Control group (N=60)	χ^2 (df) p value
Attainment of menarche			
• <12 years	5 (8.3%)	1 (1.7%)	3.081
• 12-15 years	**54 (90.0%)**	**57 (90.0%)**	(2)
• >15 years	1 (1.7%)	2 (3.3%)	0.322
Duration of marriage			
• <2 years	**26 (43.3%)**	**25 (41.7%)**	0.737
• 2-5 years	16 (26.7%)	20 (33.3%)	(2)
• >5 years	18 (30.0%)	15 (25.0%)	0.692
Gravida			
• Primigravida	30 (50%)	30 (50%)	
• Multigravida	30 (50%)	30 (50%)	
Gestational weeks			
• <37 weeks	3 (5.0%)	11 (18.3%)	7.814
• 37-40 weeks	**54 (90.0%)**	**49 (81.7%)**	(2)
• >40 weeks	3 (5.0%)	0 (0.0%)	0.017
Weight of mother			
• <50kg	10 (16.7%)	13 (21.7%)	0.903
• 50-70kg	**45 (75.0%)**	**44 (73.3%)**	(2)
• >70kg	5 (8.3%)	3 (5.0%)	0.657
History of abortion			
No	**43 (71.7%)**	**40 (66.7%)**	0.355
Yes	17 (28.3%)	20 (33.3%)	(1)
			0.693

N=120

Table 3 Comparison of scores of state anxiety level among labouring mothers

N=120

Labouring mothers	Level of anxiety		Wilcoxon test
	Pre-interventional	Post-interventional	
	Median (IQR)		
Experimental group (n=60)	53(38-70)	37(29-62)	
Control group (n=60)	51(38-74)	61(36-71)	**-4.605 (<0.05)**
U-test (df) p-value	1670 (2) 0.494	**80.50 (2) 0.001**	

FIGURES

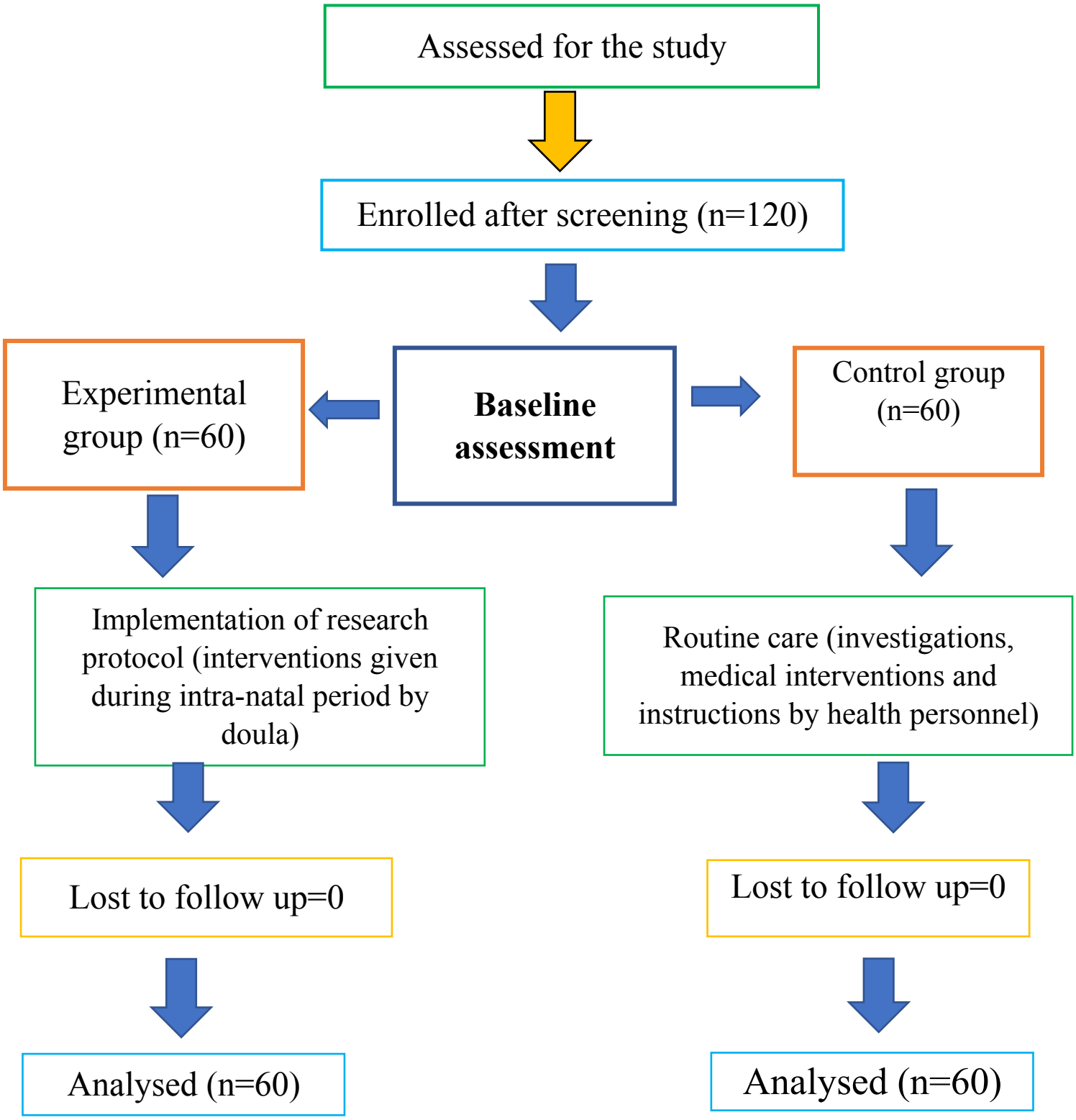

Figure 1: Consort diagram

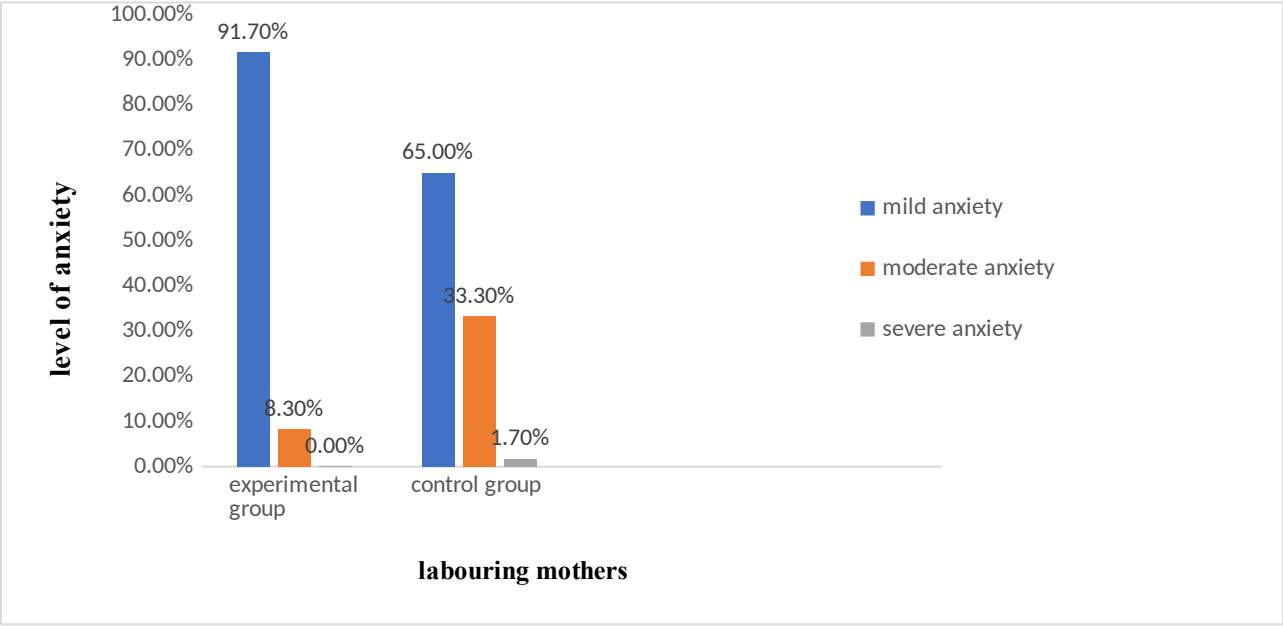

Figure 2: Trait anxiety among labouring mothers

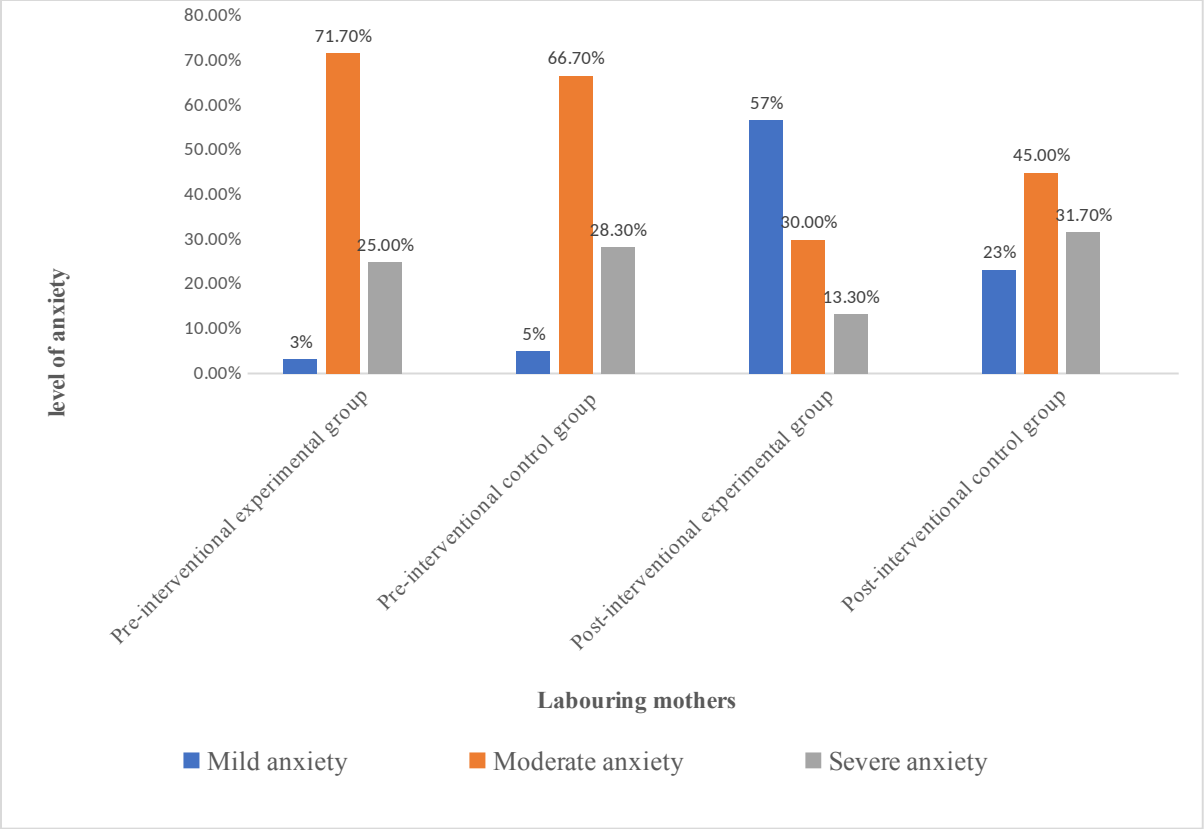

Figure 3: State anxiety among labouring mothers