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## Original Research Article

# A retrospective study to determine correlation of physical activity with natural labor

Padmavathi Narahari, Anilasre Atluri\*

Department of Obstetrics and Gynaecology, Saveetha Medical College and Hospital, Thandalam, Chennai, Tamil Nadu, India

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**\*Correspondence:**

Dr. Anilasre Atluri,

E-mail: [dranila97@gmail.com](mailto:dranila97@gmail.com)

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### ABSTRACT

**Background:** Most pregnant women wish to have natural birth. Worldwide rate of caesarean is increasing due to various reasons. In this study we evaluate the correlation of physical activity with occurrence of normal delivery.

**Methods:** This is a retrospective study on 200 women based on questionnaire regarding history of physical activity in primiparous women who had natural delivery or caesarean delivery. Sampling was done by purposive selective sampling method. All the women included in the study had delivered either by caesarean or natural birth with birth weight of the babies between 2.5-3.5 kg. Analysis was done by descriptive and inferential statistics.

**Results:** Among 100 women with natural labor 83 had at least one or two kind of physical activity, whereas among 100 women with caesarean, only 12 had some kind of physical activity.

**Conclusions:** Based on our findings inclusion of physical activity during antenatal period increased the rate of natural birth.

**Keywords:** Pregnant women, Normal delivery, Caesarean delivery, Physical activity

### INTRODUCTION

The rate of caesarean deliveries is visibly on the rise, although it varies with different healthcare providers and the place of delivery.<sup>1-3</sup>

High rates of caesarean are of utmost concern as they expose the mother and child to short-term and long-term health risks and have a direct impact on financial burden of the families and health systems.<sup>4,5</sup> The rate of caesarean in India has increased from 8.5% in 2005–06 to 17.2% in 2015–16.<sup>6</sup> Physical activity in general, can be defined as any bodily movement produced by the contraction of skeletal muscles.<sup>7</sup>

Exercise, defined as activity involving planned, structured, and repetitive body movements done to

improve one or more components of physical fitness, is an essential component of a healthy lifestyle.<sup>7</sup> Obstetric care providers should encourage their patients to continue or to incorporate exercise as an important component of good health.

With this background, our study was conducted to find the correlation between physical activity and normal delivery in a selected population. Indian women indeed have lot of physical activity with the household work. Indian toilets are also an important aspect of postural exercise. But in recent years, there has been a paradigm shift in these aspects in India. People working in software companies have inactivity, those at home also have household help, increasing rate of infertility makes the pregnancies more precious in terms of rest to avoid any complications especially abortions.

Urban population is more prone to this inactivity compared to villages, more so middle class and upper class are more inactive than the people with low socioeconomic class. Hence, delivery trends are also comparable in these groups with higher rates of normal delivery in low socioeconomic people than in higher.

Our study makes an effort to emphasize that physical activity in antenatal period is beneficial in helping the women into normal delivery.

## METHODS

This retrospective study was conducted in Saveetha Medical College from January 2017- January 2018. Total of 200 women were enrolled into the study between the age group of 20-30 yrs. Selective random sampling method was chosen for including the patients in the study.

### Inclusion criteria

Inclusion criteria was primiparous women who had normal labor or caesarean delivery.

### Exclusion criteria

Obese women, obstetric absolute indication for caesarean like central placenta previa, malpresentation etc., and women who had caesarean due to medical complications like hypertension or diabetes etc., were excluded from the study.

All the women included in the study were given a structured tested questionnaire in their own language which included questions based on their demography as well as physical activity.

Among the 200 women, 100 women with normal delivery and 100 with caesarean delivery were selected. A questionnaire regarding their demographic data and physical activity like walking, household work with bending, using Indian or western toilet, etc was taken after consent.

Kaiser physical activity survey (KPAS) is a questionnaire based on the Baecke et al physical activity research and used for the assessment of physical activity in women.<sup>8</sup>

**Table 1: List of specific activities assessed by the Kaiser physical activity survey.<sup>9</sup>**

Block	Type of activity	Number of items
<b>Household chores/ family care</b>	House cleaning, shopping, gardening, care of elderly persons and children, construction work.	11
<b>Occupational activities</b>	working activities in the sitting and standing positions, walking while carrying weights, efforts that cause transpiration.	11
<b>Life habits</b>	Watching television, riding a bicycle or walking to go to work or to school.	4
<b>Participation in sports and exercises</b>	The frequency and duration of up to three sports or exercises performed periodically are included.	15

This tool evaluates the physical activity (domestic activity/caregiver, occupational, active life and sports/exercises) and, its objective is to measure the types of physical activity performed by women and not their level of physical activity.

The questionnaire data was analysed by descriptive and inferential statistics.

## RESULTS

Results of the demographic data and the physical activity were analysed. Among the 100 primiparous women with normal delivery, 83 had some physical activity daily. Among 100 women with primary caesarean, after excluding medical indications for LSCS, 12 were involved in physical activity.

Among 95 women with physical activity during antenatal period, 83 (87.36%) had normal delivery and 12 (12.6%) had caesarean.

Among 105 women without any physical activity 17 (16.19%) had normal and 88 (83.8%) had caesarean delivery.

**Table 2: Physical activity among the two groups.**

	Normal delivery	Caesarean delivery
<b>Physical activity (walking or yoga for half an hour daily)</b>	83 (87.36%)	12 (12.6%)
<b>No physical activity</b>	17 (16.19%)	88 (83.8%)
<b>Total</b>	100	100

Among 100 patients with normal delivery, 67% were illiterate. 14% studied upto 10th std, and 19% were graduates or postgraduates.

Among women with caesarean, 63% were graduates or postgraduates, 26% studied upto 10th and 11% were illiterate.

**Table 3: Education status of the women involved in the study are depicted in the following table.**

	Normal delivery	Caesarean delivery
<b>Illiterate</b>	67 (85.8%)	11 (14.1%)
<b>Up to 10th std</b>	14 (35%)	26 (65%)
<b>Graduate/postgraduate</b>	19 (23.1%)	63 (76.8%)
<b>Total</b>	100	100

Among 78 illiterate women, 67 (85.8%) had normal delivery and 11 (14.1%) had caesarean.

Among 40 women who had studied up to 10th std, 14 (35%) had normal delivery and 26 (65%) had caesarean.

Among 82 women who were graduates or postgraduates, 19 (23.1%) had normal and 63 (76.8%) had caesarean.

**Table 4: Occupation of women include in the study.**

	Normal delivery	Caesarean delivery
<b>Homemaker (without physical activity)</b>	9 (10.9%)	73 (89.02%)
<b>Homemaker (with physical activity)</b>	44 (77.1%)	13 (22.8%)
<b>Job involving walking and bending</b>	43 (78.1%)	12 (21.8%)
<b>Computer work (home or office) no physical activity</b>	4 (21.05%)	15 (78.9%)

Among the 100 women with normal delivery, 9 were homemakers without physical activity, 44 were homemakers with physical activity, 43 were in a job involving walking and bending and 4 were in a job with computer either at home or office.

Among 82 women who were homemakers without physical activity, 9 (10.9%) had normal delivery and 73 (89.02%) had caesarean.

Among 57 homemakers with physical activity, 44 (77.1%) had normal delivery and 13 (22.8%) had caesarean.

Among 55 women with job involving walking and bending, 43 (78.1%) had normal delivery and 12 (21.8%) had caesarean.

Among 19 women were doing computer work, 4 (21.05%) had normal delivery and 15 (78.9%) had caesarean.

## DISCUSSION

The results from the study indicate higher rate of normal delivery 87% among people with physical activity than

13% in women without physical activity. The prescribing of exercise for pregnant women usually do not vary much from the general population except for some involving extreme postures which they may not be able to do.<sup>10</sup>

Women who are pregnant and obese should especially be advised to engage in physical activities and balanced diets.<sup>11</sup>

There are concerns that regular physical activity during pregnancy may lead to miscarriage, fetal growth restriction, musculoskeletal injury, or premature delivery which have not been established for women with uncomplicated pregnancies.<sup>12-14</sup>

Exercise was associated with a significantly higher incidence of vaginal delivery and a significantly lower incidence of caesarean birth, with a significantly lower incidence of GDM and hypertensive disorders.<sup>15</sup> Hence, not only is exercise beneficial for normal delivery, it has an impact on reducing gestational diabetes which is an upcoming endemic.

Several reviews have shown that there is no reliable evidence to advise bed rest in pregnancy for the prevention of preterm labor, and it should not be routinely recommended.<sup>16,17</sup> Therefore, restriction of physical activity should not be prescribed as a routine treatment to decrease the incidence of preterm birth.

## Limitations

Limitations of the study were physical activity could not be correlated in women who underwent caesarean for relative indications, more robust data is needed for the same. The questionnaire was not validated for pregnant women but was used for the same. Randomised controlled trials with larger numbers would further be needed with a better tool to assess the level of physical activity in pregnant women.

## CONCLUSION

This study ascertains the fact that physical activity should become a routine prescription in antenatal care of women as it increases the probability of normal delivery and thus decreasing not only the rate of caesarean, but decreasing the financial burden as well as burden on the health care infrastructure.

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