SHORT RESEARCH ARTICLE

Pregnancy Outcomes in A Community-Based Cohort Study in Rural Dakshina Kannada

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ABSTRACT

Introduction: According to the 2011 census report, the 0-6 child sex ratio decreased by 5 points registering 947 female children to 1000 male children in Dakshina Kannada district as compared to 2001 census. The skewed sex ratio can adversely affect society in various ways. The objectives were to determine the proportion of total pregnancy loss and different trimester pregnancy loss in rural Dakshina kannada and to identify the causes of 2nd trimester pregnancy loss.

Methodology: A community based prospective cohort study was conducted in Dakshina Kannada. Multi stage sampling was done with application of thumb rule. Data was entered in Microsoft Excel for data management and data analysis. Total number of pregnancies in each PHC was calculated monthly. Incidence of pregnancy loss for each trimester was calculated along with the proportion of loss in each trimester. Causes for second trimester pregnancy loss was determined using a validated questionnaire.

Results: A total of 5135 pregnancies during the study period in the sampled PHCs were followed up. 138 of the registered pregnancies underwent abortion in various trimester. The proportion of pregnancy loss was found to be 67%, 27.5% and 5% in the first, second and third trimester respectively. Incidence of second trimester pregnancy loss was found to be 0.7%. The major cause for second trimester pregnancy loss was found to be spontaneous.

Conclusion: The study concludes that the proportion of pregnancy loss and incidence of second trimester pregnancy loss in the district is within the normal range.

Keywords: Pregnancy loss, Second trimester abortion, Rural, Incidence, Pregnancy outcomes

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Introduction

By 2010, an estimated 125 million women were missing globally, with 43.3 million from India. This imbalance is primarily attributed to two factors: (1) prenatal sex selection, where female foetuses are selectively aborted following sex determination, and (2) higher female mortality post-birth, driven by neglect, inadequate healthcare, and nutritional disparities. These factors have contributed to a skewed sex ratio and a significant gender imbalance in countries like India.[1] The population of India has long been characterized by a numerical deficit of female, and for at least some age groups this sex ratio imbalance has grown over recent decades.

Ultrasonography (USG), a method used extensively for detection of fetal anomalies, is now being used even for fetal sex determination. At a gestational age as early as 13 weeks, sex of the fetus can be determined with 99-100% precision by the help of ultrasonography.[2] Initially, only the affluent parents had the opportunity to undergo sex determination but due to the development of a non-invasive and less expensive technique has rendered sex determination to the middle-class families fulfilling their wish of bearing a male child.[3] Eliminating bias against the girl child is crucial for overall development, including social status, lifestyle, and economic progress. This, in turn, impacts the United Nations' Sustainable Development Goals, particularly the goal of achieving gender equality.[4] There are various reasons including social & cultural beliefs that are influencing the preference for a male child, such as dowry and violence against women.

The practice of female foeticide is showing adverse effects on the child sex ratio in the Country. According to the 2011 census report, the 0-6 child sex ratio decreased by 5 points registering 947 female children to 1000 male children in Dakshina Kannada district as compared to 2001 census. A community-based cohort study was planned with the objective of determining the proportion of total pregnancy loss and different trimester pregnancy loss in rural Dakshina kannada and to identify the causes of 2nd trimester pregnancy loss.

Methodology

A community-based cohort study was done in rural Dakshina Kannada. Multistage sampling was done to identify the village and women as sample unit. There are 5 Taluks in Dakshina kannada, 50% of the taluks are considered for the study as per thumb rule[5] (Mangalore and Bantwal is considered for convenience). There are around 36 PHCs in these two taluks. Considering 30% of sample[5] being 13 PHC which were selected randomly using lottery method.

Based on the proportion of PHCs, 9 PHCs were selected from Mangalore Taluk and 4 from Bantwal Taluk. All the registered pregnant mothers during the study period through MCT software by local ASHA worker in 13 PHC were followed up for 9 months to check for pregnancy loss and its causes during 18 months of study. Taking birth rate as 11.2 per 1000 population as birth rate, in 13 PHC for 18 months, minimum sample size was estimated to be 2550.

All the mothers with confirmed pregnancy are registered by the female health worker through the ASHA worker and followed up throughout the pregnancy by MCT software and field visits (the lady is registered irrespective of her visit to the PHC) in our 13 sample PHCs. We followed up this by checking the software and confirming it at the field level to get the proportion of pregnancy loss in each trimester after obtaining permission from the district authority.

The data was further obtained from the ANC registry which is maintained by the ANMs of the PHCs. The mother who had pregnancy loss in 2nd trimester were interviewed using validated questionnaire for obtaining the socio demographic profile and cause for pregnancy loss. Ethical clearance was obtained from the Institutional Ethics Committee.

The data was entered in Microsoft Excel and analysed. Frequency and proportion were estimated.

Approval of Institutional Ethical Review Board INST.EC/EC/056/2017-18, K S Hegde Medical Academy

Results

The total number of pregnancies registered in the 13 sample PHCs during the study period were 5,135. Out of these 138 pregnancies underwent abortion in various trimester and 4997 women delivered a live healthy child. Majority of the pregnancy loss i.e., 67% occurred in the first trimester. Incidence of total pregnancy loss was 2.6% in the sampled PHC.

Incidence of second trimester pregnancy loss was found to be 0.7%. The Incidence was founded to be highest in the PHC 10 at 2.7%. The socio demographic profile of the women who underwent 2nd trimester abortion was obtained.

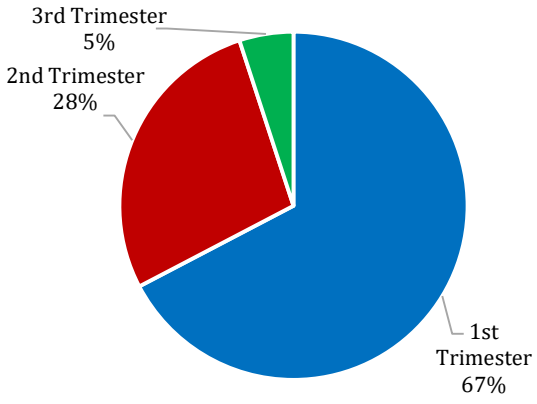

Figure 2: Showing proportion of pregnancy loss in various trimesters

Table 1: Showing the socio demographic profile of the women who underwent 2nd trimester abortion

Variables	Frequency (%)
Age (years)	
21- 25	14 (38.9)
26 – 30	13 (36.1)
31 – 35	7 (19.4)
>35	2 (5.6)
Religion	
Hindu	20 (0.556)
Muslim	16 (0.444)
Education	
≤ 9th std.	1 (2.8)
Up to 10th std.	13 (36.1)
10 to 12th	16 (44.4)
Degree	4 (11.1)
Professional and masters	2 (5.6)
Occupation	
Home maker	28 (77.8)
Skilled	5 (13.9)
Unskilled labourer	0 (0)
Clerical/official	2 (5.6)
Private/ business/ self employed	0 (0)
Professional	1 (2.8)
Type of family	
Joint family	25 (69.4)
Nuclear family	11 (30.6)

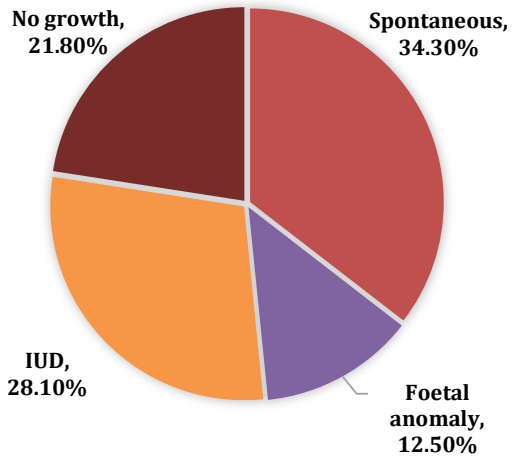

Figure 3: Showing reasons for pregnancy loss in 2nd trimester

Majority of the women belonged to the age group of 21-21 years (38.9%) and were Hindu by religion (55.6%).

Majority of the women were educated till pre university level (44.4%) and were homemakers (77.8%). The most common reason for the pregnancy loss was found to be spontaneous (34.3%) following the symptoms such as bleeding and pain abdomen.

The other common complaints included loss of fetal movement which was later detected to be Intra uterine deaths. Majority of the pregnancy loss was found in primigravida mothers i.e., 61% of the total second trimester abortion.

Few of the mothers were found to have associated medical conditions like hypothyroidism and hypertension diagnosed during the pregnancy which can further influence on pregnancy loss. 70% of the women underwent intervention at private clinic/Hospital where they were going for the ANC visits.

All of the mothers had undergone at least one ultrasonography before the pregnancy loss. 50% of the patients had undergone ultrasonography less than a week before the pregnancy loss.

Majority of the women did not know the sex of the fetus lost. 4 of the women had loss of male fetus, one woman had loss of twin female fetuses.

Discussion

Early pregnancy loss is common, occurring in 10% of all clinically recognized pregnancies.[6,7,8] Approximately 80% of all cases of pregnancy loss occur within the first trimester.[6,7] A study done in Kenya by McNamee et al showed that the out of total registered 1134 pregnancies 7.9% of them experienced miscarriage and 75% of miscarriage occurred by 18 weeks of pregnancy.[9] In our study, the incidence of pregnancy loss was estimated to be 2.6% overall and the proportion of first trimester pregnancy loss was estimated to be 67%.

The pregnancy loss for the second trimester is usually found to be around 3% of all the pregnancy.[10] In the present study, the incidence of second trimester abortion was found to be around 0.7%. The proportion is consistent with the normal range of second trimester pregnancy loss.

We collected pregnancy data from selected PHCs using ANC registries maintained by ANMs at subcenters. While pregnancies are registered as early as 8 weeks, some occur after 12 weeks, raising concerns about missed second-trimester losses. ANM'S, often managing two sub-centers, face staffing shortages, affecting program implementation. Frequent transfers hinder familiarity with the local population. Working women, often unavailable during health visits, tend to register late, increasing the risk of unrecorded pregnancy losses.

We found that the majority of second trimester pregnancy loss occurred in the primigravida mother i.e., in their first pregnancy. Also, few precious pregnancies were found in cases of second trimester pregnancy loss. A recent study suggested that the problem of recurrent pregnancy loss is found to be increasing in the Indian population. It was found that the percentage of patients having a subsequent miscarriage after the first, second, and third miscarriage was 24.97, 34.04, and 21.88 %, respectively.[11]

In this study, it was found that the leading cause of pregnancy loss in second trimester was spontaneous (34.3%). A study by McNamee et al showed that the majority of the second trimester pregnancy loss is idiopathic (51%).[12] As majority of the cases in the present study were primigravida no record of further evaluations done were available for assessment of exact cause. Intervention for the pregnancy loss was done at the private clinic/hospitals by majority (70%) of the mothers. The abortion assessment project India also states that people prefer to go to private settings for the abortion intervention for various reasons including better care and assuredness of confidentiality.[13]

Conclusion

The proportion of pregnancy loss in different trimester was found to be in sync with normal occurrence. The incidence of second trimester pregnancy loss was within the normal range, no striking results were found which would indicate towards the female foeticide.

The major cause for the second trimester pregnancy loss was found to be spontaneous followed by IUD, no growth and fetal anomaly.

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