



**A COMPARATIVE STUDY ON STILL BIRTH BETWEEN THE HINDU AND THE MUSLIM
POPULATION OF KOLKATA, WEST BENGAL, INDIA**

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ABSTRACT

The present study is an attempt to explore the incidence of still birth between Hindu and Muslim population of West Bengal. The sample comprised of 10,000 birth records (both live and still births) from Log book of N.R.S. Medical College & Hospital and R.G. Kar Medical College & Hospital situated in the city of Kolkata, West Bengal, India. The present sample is constituted by Bengali speaking Hindu and Muslim mothers. Simple percentage and bar diagram were used for analysis of data. The Z test for differences on still birth between the Hindu and the Muslim Bengalee population employed. This difference was found to be significant statistically ($p < 0.001$). Findings of this study showed that the Muslims (10.32%) had a higher incidence of still birth compared to the Hindus (3.97%). The difference in still birth between the Hindu and the Muslim was statistically significant ($z=8.04$, $p < 0.0001$). The study also revealed that the older mothers (28yrs-36yrs and 37yrs-45yrs) were at high risk for still birth in comparison to younger mothers (below 18 yrs and 19 yrs-27 yrs). The present study concluded that the percentage of still birth is increasing with increasing of mothers' age, because the age of 35 years is a critical threshold for reproductive success, the risk of fetal deaths rapidly increases after this age. On the other hand, the higher incidence of still birth among Muslim mothers compared to Hindu mothers is complicated to explain.

KEYWORDS: Still birth of Hindus, Still birth of Muslims, comparative study, West Bengal.

INTRODUCTION

Raymond Pearl^[1] included still birth, miscarriage and spontaneous abortion as 'reproductive wastage'. Pearl further observed that still birth 'in strict logic and definition means infant born dead at or near term'. Miscarriage or abortion was categorically differentiated from still birth and accordingly the following was made: 'the term miscarriage or abortion is applied to the passage from the mother of a fetus insufficiently developed to have any chance of extra-uterine life'.

According to World Health Organization^[2], 'A stillbirth refers to a dead born fetus which can either occur before the onset of labor (ante-partum death) or during labor (intra-partum death) and is expressed per 1000 of total births'.

An over view of still birth

In 2009, worldwide, there were over 2.6 million stillbirths and 98% of them were found in low- and middle-income countries.^[3] The same study also shows that about 76.2% of stillbirths occurred in South Asia and Sub-Saharan Africa. According to Lawn et al.,^[4] about 66% (1.8 million) of stillbirths in the world occur in just 10 countries: India, Pakistan, Nigeria, China, Bangladesh, Democratic Republic of the Congo, Ethiopia, Indonesia, Afghanistan and the United

Republic of Tanzania. The same study records that India has the highest number of stillbirths in the world and its frequency varied from 20 to 66 per 1,000 total births across different states.^[4] Among the larger states, the highest level of stillbirth rate has been found in Karnataka^[5] and the lowest found in Bihar and Jharkhand.^[6]

Underlying causes of still birth

The most common risk factors associated with still births in developing countries are lack of antenatal care and skilled birth attendants at the time of delivery, low socio-economic status and poor dietary intake of mothers, prior experience of still births (or multiple births) and higher maternal age at child birth.^[7] A study from Austria showed the effect of maternal age and birth weight of still born on still birth rate.^[8] Similarly, Astolfi et al.^[9] found in his study that the relative risk of still birth is higher in older mothers (≥ 35) compared to their younger counterparts (< 35) because of an increase in the risk of unfavorable pregnancy outcome. Another study identified the risk of still birth from occupational and residential exposures.^[10] Luna et al.^[11] found that the still birth is mainly associated with birth year of mother, primagravida, twin deliveries and to a lesser extent by inbreeding and sex of the child. The study also found that

still birth provided no evidence for any significantly increased risk in relation to family size.

Still birth in India

In India very little attention has been paid to the problem of still birth. One study conducted in the hospital of West Bengal showed the biological implication of still birth in the context of varying economic positions of the mother.^[12] Similar kind of work has been conducted by Roy *et al*^[13] to find out the changing nature of still births and thereby to have an assessment of the nature of improvement health care system specially relating to maternal health through antenatal care. Data from Calcutta, Bombay and Pondicherry showed a higher frequency of still births among the consanguineous mothers compared to non consanguineous mothers.^[14, 15]

A study from Pune city showed mothers' education, medical causes like induced hypertension and eclampsia during pregnancy and medical ignorance (lack of suboptimal antenatal and intrapartum care) are responsible for still birth problem.^[16] Thus, the present study explored the incidence of still birth and its concomitants among the Bengalee speaking Hindu and Bengali Muslim population of West Bengal.

MATERIALS AND METHODS

Area of the study

The present study was based on the birth records from the two renowned government hospitals viz a) Nil Ratan Sircar (N.R.S.) Medical College and Hospital and b) Radha Gobinda Kar (R.G. Kar) Medical College and Hospital situated in the city of Kolkata, West Bengal, India.

The sample and method of collection of data

The sample comprised of 10,000 births (both live births and still births). The number of live births and still births were 9535 and 465 respectively. The study participants comprised of Bengalee speaking Hindu and Muslim mothers. The information such as maternal age, sex of births, single delivery, birth order, and religious group relevant in the context of the present study were obtained from the log book of the respective hospitals.

Statistical Analysis

Simple percentage and bar diagram were used for analysis of data. The Z test for differences on still birth between the Hindu and the Muslim population used because the sample size was large enough and it assumed that they were normally distributed. Bivariate statistics like, chi-square test and odds ratios with 95% confidence intervals were calculated to determine the association of still birth with different variables such as religion and age group of the mothers and with sex of the child.

RESULTS

Table 1. Stillbirth in the Bengalee population

No. of mothers	Live birth			Still birth		
	Male	Female	Total	Male	Female	Total
Hindu 8924	4486 (50.27)	4084 (45.76)	8570 (96.03)	187 (2.10)	167 (1.87)	354 (3.97)
Muslim 1076	486 (45.17)	479 (44.52)	965 (89.68)	61 (5.87)	50 (4.65)	111 (10.32)
Total 10,000	4972 (49.72)	4563 (45.63)	9535 (95.35)	248 (2.48)	217 (2.17)	465 (4.65)

Figures in parentheses are percentages

The incidence of still birth in total population was 4.65%. The Muslims (10.32%) had a higher incidence of still birth compared to the Hindus (3.97%) (table-1). The difference in still birth between the Hindu and the Muslim was statistically significant ($z=8.04$, $p<0.0001$).

Table 2. Stillbirth according to the age of mother

Age group	No. Of Mothers	Hindu		No. Of Mothers	Muslim		χ^2 , p
		Live birth	Still birth		Live birth	Still birth	
Below 18	1121	1085 (96.79)	36 (3.21)	173	161 (93.06)	12 (6.94)	$\chi^2=4.83$ $p=0.03$
19-27	6260	6036 (96.42)	224 (3.58)	674	586 (90.57)	61 (9.43)	$\chi^2=49.3^*$ $p=0.0001$
28-36	1478	1390 (94.05)	88 (5.95)	236	202 (85.60)	34 (14.40)	$\chi^2=20.73^*$ $p=0.0001$
37-45	65	59 (90.77)	6 (9.23)	20	16 (80.00)	4 (20.00)	$\chi^2=0.83$ $p=0.37$

$p\leq 0.05$, figures in parentheses are percentages

Table 3. Concomitants of still birth

Concomitants	Live birth	Still birth	χ^2	Odds ratio (95% C.I.)
Age groups				
Younger (18-27 years)	7868	333	$\chi^2 = 35.0$ p<0.001	0.53 (0.43-0.66)
Older (28-45 years)	(95.94) 1667 (92.66)	(4.06) 132 (7.34)		
Religious group				
Hindu	8570	354	$\chi^2 = 85.87$ p<0.001	0.36 (0.29-0.45)
Muslim	(96.03) 965 (89.68)	(3.97) 111 (10.32)		
Gender of birth				
Male	4972	248	$\chi^2 = 0.21$ p>0.001	1.05 (0.87-1.26)
Female	(95.25) 4563 (95.46)	(4.75) 217 (4.54)		

The percentage of stillbirth gradually increased with the increase in mothers' age for both the Hindu and the Muslim. However, the proportion of still birth was significantly higher among the Muslims compared to that of the Hindus for all the age categories, barring (37-45) year category (table-2). Table 3 demonstrated that younger mothers were less likely (OR 0.53) to give still birth compared to older mothers. It is also notable that still birth risk was found to be less (OR 0.36) among Hindu mothers compared to Muslim ones.

DISCUSSION

In the present study, significantly higher still birth was seen among the Muslim mothers compared to Hindu mothers corroborated with the study of Das Chaudhuri *et al.*^[17] In his study, the author was hypothetical that if still birth is assumed to be recessive trait (as in pedigree analysis still birth is not found in successive generation) its frequency is expected to be higher in population of Muslims than the population of Hindus as the earlier population practices inbreeding which accelerates the frequency of recessive genes, hence higher incidence of still birth was found in the Muslim population. This finding is contradicted with the hypothesis that deleterious genes were operational only in late neonatal life times, a finding conformed in few population studies.^[18,19] On the other hand, the smaller still birth risk observed in La Alpuzarra among related parents coincides with a lower abortion rate.^[11]

The present study also revealed that older mothers were significantly at higher risk for still birth in comparison to younger mothers, corroborated with the other studies.^[20-23] The increase in percentage of still birth near the end of the reproductive span of the human female probably is due to a gradual cessation of the proper functioning of the endocrine system of the older mothers.^[24] The age of 35 years is a critical threshold for reproductive success, because the risk of fetal deaths rapidly increases after this age.^[25, 26]

Strength of the present study includes the large sample size, which facilitated to reflect general population trends. But, the present study was solely depended on the information of the birth register of the two respective hospitals. Thus, it remained uncertain whether the result reflects trend of still birth of the state.

CONCLUSION

The present study indicates that i) the risk of having still birth is significantly higher among the Muslim mothers compared to Hindu mothers. And, ii) risk of stillbirth is one of the risks that increases with advanced maternal age. Thus, further community based study should be needed incorporating several other factors such as socio-economic condition, antenatal care, life style pattern, anthropometric traits of the mothers on this sensitive issue.

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REFERENCES

1. Pearl R. The Natural History of Population. London: Oxford University Press: 1939.
2. World Health Organization (WHO). Neonatal and perinatal mortality, country, regional and global estimated. Department of Making Pregnancy safer. Geneva: WHO, 2004.
3. Cousens S, Blencowe H, Stanton C, Chou D, Ahmed S, Steinhardt L, Creanga AA, Tunçalp Q, Balsara ZP, Gupta S, Say L, Lawn JE., National, regional, and worldwide estimates of stillbirth rates in 2009 with trends since 1995: a systematic analysis. *Lancet* 2011; 377(9774):1319-30.
4. Lawn JE, Lawn JE, Blencowe H, Pattinson R, Cousens S, Kumar R, Ibiebele I, Gardosi J, Day

- LT, Stanton C, . Stillbirths: Where? When? Why? How to make the data count? *Lancet* 2011; 377(9775): 1448-63.
5. Woods R. Long-term trends in fetal mortality: implications for developing countries. *Bull World Health Organ*, 2008; 86(6): 460-466.
 6. WorldHealthOrganization.Stillbirth.http://www.who.int/maternal_child_adolescent/epidemiology/stillbirth/en/ (accessed Noverber 2015).
 7. Ramanathan M. Reproductive Health Index: Measuring Reproduction or Reproductive Health?. *Economic and Political Weekly*, 1998; 33(49): 3104-3107.
 8. Waldhoer T, Haidinger G, Langgassner J, Tuomilehto J. The effects of maternal age and birth weight on the temporal trend in still birth rate in Austria during 1984-1993. *Wien Klin Wochenschr*, 1996; 108(20): 643-348.
 9. Astolfi P, Ulizzi L, Zonta LA. Trends in child bearing and still birth risk : heterogeneity among Italian regions. *Hum Biol*, 2002; 74(2):185-196.
 10. Pastore LM, Hartz Picciotto I, Beaumont JJ. 1997. Risk of still birth from occupational and residential exposures. *Occup Environ Med*. 1997; 54(7): 511-518.
 11. Luna F, Polo V, Fernandez SA, Moral P. Still birth pattern in an isolated Mediterranean population: La Alpujarra, Spain. *Hum Biol*, 2001; 73(4):561-573.
 12. Banerjee AR, Banerjee P, Das G. A study on still birth, in biosocial studies in India. In: Pakrasi KB, Banerjee AR, and Das A (eds.). *Bio-social Studies in India: A Reading in Collected Papers, 1961-1970*, Calcutta; Editions India: 1976, pp. 363-369.
 13. Roy Ghosal J, Pal SC, Banerjee AR. Further study on still birth among the Banerjee mothers of a Calcutta hospital. *Journal of Department of Anthropology*, 1998-1999; 5: 105-110.
 14. Stevenson AC, Johnson HA, Stwert MIP, Golding DR. Congenital Maformations : A Report of Series of Consecutive Births in 24 Centers. *Bull WHO*, 1966; 178-187.
 15. Verma IC, Prema A, Puri AK. Health effects of Consanguinity in Pondicherry. *Indian paediatrics*, 1992; 29: 685-692.
 16. Korde-Nayak VN, Gaikwad PR. Causes of stillbirth. *Obstet Gynaecol India*, 2008; 58(4): 314-318
 17. Das Chaudhuri AB, Basu S, Chakraborty S. Twinning rate in the Muslim population of West Bengal. *Acta Genet Med Gemellol (Roma)*., 1993; 42(1): 35-39.
 18. Roberts DF, Bonne B. Reproduction and inbreeding among the Samaritans. *Soc. Biol*, 1973; 20(1): 64-70.
 19. Reddy VR, Rao AP. Effects of parental consanguinity on fertility, mortality and morbidity among Pattusalis of Tirupati, South India. *Hum Hered*. 1978(a); 28(3): 226-34.
 20. Fretts RC, Schmittiel J, McLean FH, Usher RH, Goldman MB. Increased maternal age and risk of fetal death. *N Engl F Med*, 1995; 333(15): 953-957.
 21. Froen JF, Cacciatore J, McClure EM, Kuti O, Jokhio AH, Islam M, Shiffman L. Stillbirths: why they matter. *Lancet*, 2011; 377(9774): 1353-1366.
 22. Reddy UM, Ko CW, Willinger M. Maternal age and the risk of stillbirth throughout pregnancy in the United States. *Am J Obstet Gynecol.*, 2006; 195(3): 764-770.
 23. Bahtiyar MO, Julien S, Robinson JN, Lumey L, Zybert P, Copel JA, Lockwood CJ, Norwitz ER.
 24. Standskov HH, Einchovon S. Still Birth on the Variation of Age of the Mother and Percentage of Still Births in Total White and Colored USA Population. *Am. Jr. Phys*, 1949; 6.
 25. Ulizzi L, Astolfi P, Zonta LA. Natural Selection in Industrialized Countries: A Study of Three Generations of Italian Newborns. *Ann Hum Genet*, 1998; 62(1): 47-53.
 26. Astolfi P, Ulizzi L, Zonta LA. Selective Cost of Delayed Childbearing. *Hum Repord*, 1999; 14: 572-573.