

Figure 2: Distribution of Sex Ratio at Birth by block at Cuddalore district, Tamil Nadu, India, 2007-2011.

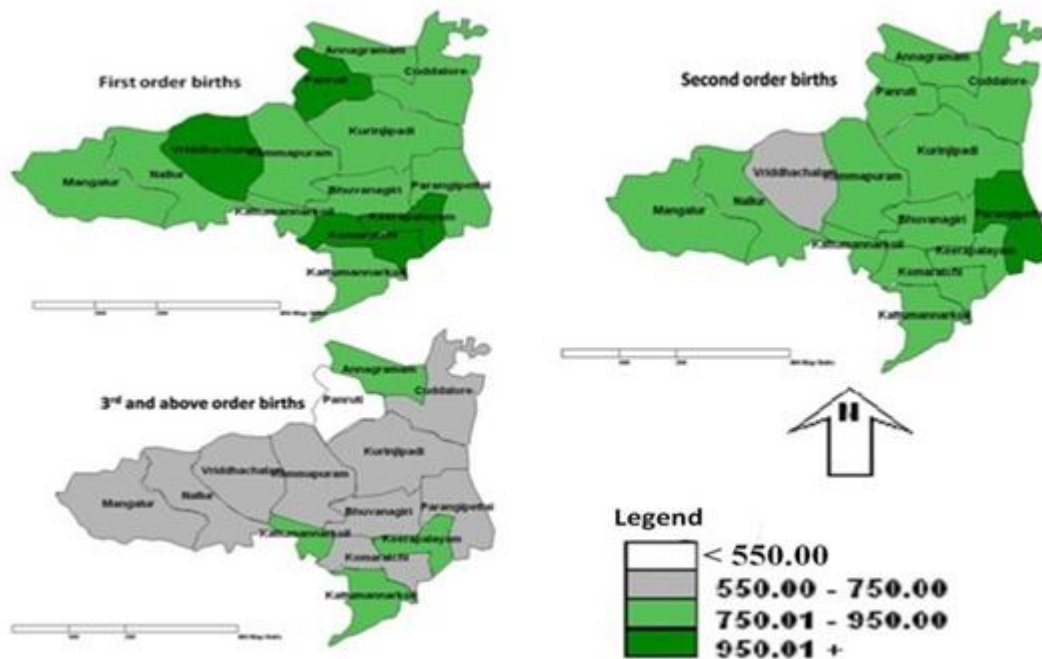


Figure 3: Distribution of Birth Sex Ratio by order of birth, by block at Cuddalore District, Tamil Nadu, India, 2011.

Table 4: Comparison of observed and expected number of female live births for each order of birth by Chi square technique at Cuddalore district, Tamil Nadu, India, 2001-2011

Year	First order births				Second order births				Third order birth			
	Total Live births	Female to Male Birth Sex Ratio	Chi Square value	P value	Total Live births	Female to Male Birth Sex Ratio	Chi Square value	P value	Total Live births	Female to Male Birth Sex Ratio	Chi square value	P value
2001	16579	0.890	24.06	<0.01	14520	0.914	9.01	<0.01	9011	0.927	2.87	>0.05
2002	20649	0.951	0.52	>0.05	11664	0.926	3.95	<0.05	7037	1.111	36.94	<0.01
2003	16773	0.922	7.04	<0.01	13584	0.953	0.23	>0.05	8339	0.947	0.46	>0.05
2004	14436	0.931	3.64	>0.05	12901	0.940	1.5	>0.05	7005	0.896	8.43	<0.01
2005	16126	0.963	0.01	>0.05	13206	0.936	2.29	>0.05	6141	0.842	26.61	<0.01
2006	16420	0.947	0.84	>0.05	13740	0.935	2.5	>0.05	5844	0.858	18.77	<0.01
2007	16784	0.963	0.03	>0.05	14061	0.912	9.62	<0.01	5290	0.788	51.57	<0.01
2008	16694	0.931	4.12	<0.05	13938	0.867	36.31	<0.01	5124	0.775	58.1	<0.01
2009	17539	0.957	0.07	>0.05	14828	0.898	16.96	<0.01	5626	0.802	45.43	<0.01
2010	19389	0.953	0.31	>0.05	16402	0.897	19.12	<0.01	6718	0.781	71.65	<0.01
2011	18675	0.927	5.96	<0.05	15164	0.855	51.41	<0.01	4770	0.691	126.49	<0.01

Note: Expected sex ratio of '952 girls per 1000 boys' used for calculating expected numbers

Range with the time. Literature review suggests that unit of analysis was at least district in most of the studies [3][7][8][13][14]. Our observation suggests that block level monitoring of data would help to pick up the trend and affected areas early. It may be helpful to take early and targeted action. As many blocks had low sex ratio for higher order births, monitoring of higher order births by early registration of pregnancy and follow up could help in understanding the cause for this phenomenon.

Though the decrease in the proportion of girls in the first order births was lower in magnitude than higher order births, the high proportion of first order births among total births could make it a significant factor. Literature review suggests that low sex ratio has been documented with higher order births by some authors in Tamil Nadu. It was conditional upon sex of previous births and was attributed to sex selective abortion of females. But low sex ratio for the first order birth had not been documented in Tamil Nadu [7][15]. Though the lower sex ratio of higher order births support the hypothesis of sex selective abortion, our finding of low sex ratio for first order births was contradicting that. So searching for alternative cause and knowing the level of acceptance of girl children including first born in the study area could help testing the hypothesis.

We could not rule out the possibility of differential enumeration of boys and girls as a cause of low child sex ratio. It could overestimate/ underestimate the contribution of lower proportion of girls at birth as the cause of low child sex ratio. However the calculated child sex ratio from our data was closer to child sex ratio reported by census 2011. So it might not greatly affect our interpretation regarding the cause of low child sex ratio.

We conclude that low child sex ratio at Cuddalore district was due to low sex ratio at birth. Higher order births was predominantly affected. Block level monitoring of sex disaggregated birth data could be useful in identifying the trend and affected localities early.

We recommend that block should be the unit for monitoring the child sex ratio related statistics. Close monitoring of higher order births would be useful to identify or exclude sex selective abortion as the cause of low sex ratio at birth. We proposed evaluation of scan centre audit component of RCH II programme which was meant for checking sex selective abortions. We also suggested further studies to assess the level of preference for boys including that of first order births and to identify or exclude the other factors (example: environmental factors).

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