Fertility and Mortality Levels among Four Tribes of Eastern Ghats of Andhra Pradesh, India

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ABSTRACT

Fertility and mortality levels were reported in Bagatha (150), Konda Dora (150), Konda Reddi (150) and Koya Dora (170) tribes inhabiting Eastern Ghats of Andhra Pradesh. Relatively higher fertility is reported among Konda Dora women (3.4, 3.2 and 2.8) when compared to Bagatha (2.9 2.6 and 2.2) conceptions, live births and living children per woman while the remaining tribes have reported moderate fertility. A high frequency of abortions (2.3%) and still births (7%) were reported among Bagatha and Konda Reddi whereas it is found to be less among Koya Dora (0.4%) and (2.3%). However, high postnatal mortality is recorded among Koya Dora (32.4%) while the other three tribes reported moderate postnatal deaths. The factors like women's weak social status in the society, low level of literacy, early age at marriage, early childbearing age influence the demographic processes of a population such as fertility and mortality.

Keywords: Fertility. Mortality. Prenatal deaths. Postnatal deaths. Tribe.

INTRODUCTION

The study of fertility and mortality provides information on the reproductive performance of woman and socio-economic status among the populations. These are useful indicators of the health and well-being of population groups which contribute to the understanding of the

determinants of mortality levels. India is one of the ten countries that have highest number of child deaths (UNICEF, 2008) and around 24% of under-five and 30% of neo-natal global deaths occur in India (UN Report, 2012). Davis (1951) while examining the proportion and distribution of India's population over time (1901-1951) observed that mortality among tribes was very high and high fertility was compensated by high mortality under primitive conditions of life. There is tendency to have more number of children expecting survival at one point of time that would survive into adulthood (Driver, 1963; Knodel and Walle, 1967). Fertility rates and infant mortality rates are closely related (Bhattacharya et al., 1995; Winegarden and Bracy, 1995). Higher fertility levels are associated with higher probabilities of child deaths (Bhuyan, 1995) and this condition is associated with teenage childbirth (Grundy, 2009). Socio-economic and environmental disparities have been observed to be higher among scheduled tribe families than the general population (Damodar et al., 2015). Thus one frequent response of women to infant death is the renewed pregnancy (Ware, 1977; WHO, 1980; Choudhury et al., 1976; Taylor et al., 1976). The objective of the present study is to find out the levels of fertility and mortality among the study tribes of Andhra Pradesh.

MATERIAL AND METHODS

The study area for the present study was selected from the Eastern Ghats of Andhra Pradesh, an abode for tribal population with a series of discontinuous low ranges with a long chain of broken hills and elevated plateaus running north-east and south-west parallel to the coast of Bay of Bengal. The tribes of Eastern Ghats own different stages of economy such as food gathering and hunting, pastoralism, shifting and settled agriculture and the population structure is conducive for conducting demographic studies.

A household survey was carried out in each village selected from each mandal (under the control of ITDA) of the study districts. The field survey was undertaken during the years 2008-2009 by considering the numerical preponderance of the tribe in the study villages. A sample of 150 households each belonging to tribes; Bagatha of Visakhapatnam, Konda Dora of Vizianagaram, Konda Reddi of East Godavari districts and 170 households of Koya Dora tribe from West Godavari districts were chosen for the study. The data was collected to measure the actual reproductive performance as well the prenatal and postnatal loss occurred during her child bearing age of 15-49 years through simple random sampling method and interview technique.

The collected data was analyzed by using the application of Excel spread sheet and SPSS (16th Version) software.

RESULTS AND DISCUSSION

A number of demographic and health related topics like population composition such as age-sex structure, marital status; socio-economic characteristics including level of education, occupational pattern, type of family and annual income; fertility behavior, prenatal and postnatal mortality have been presented in the following tables. The information provided helps to understand the economic level and social development of the populations under study.

Health phenomena can be better understood if the members of the family have educational attainment. Table 1 show that the primary education among Bagatha males (12.9%), females (10.4%) and Gadaba males (13.1%), females (5.5%) is low. Many of the following tribes had not opted for graduation and only 14.6 per cent males of Bagatha had interest to complete graduation. However, literacy is lower among females than the male counterparts of all the tribal groups. Table 2 represents the occupational pattern and it is noticed that most of the tribes are practicing agriculture as their primary occupation. About 87.8 and 83.3 per cent of Savara and Konda Dora females are engaged in agriculture. A minimum number of women are staying at home indicating that women are equally engaged in work with men. Women especially work in agricultural fields, collect minor forest produce or work in informal sector. From table 3, it is reported that nuclear family predominates in almost all the tribes with 87.3% of Konda Dora succeeded by Konda Reddi (85.3%) families. The number of households having an annual income of over 30,000 to 60,000 is reported among Bagatha (38%) followed by Konda Dora and Koya Dora (35.3%). Only 6.7 per cent of Bagatha were reported to have an annual income of more than 60,000 rupees per annum.

Table 4 shows the quality of data collected with regard to age reporting and relatively higher frequency of females over males is observed in the age group 15-29, 30-49, 50-64 and > 65 years. The percentages decline as age increases. A higher proportion of females are reported in reproductive age group of 15-29 years than males indicating a positive trend for higher fertility in their active fertility period. However, Konda Reddi female proportion (16.97%) is found to be higher than the other study tribes and relatively less than Gadaba (21.01%). Marital status is separated into five categories and Table 5 shows that the marital status is achieved more

early among females than males in all the study tribes. Slightly higher proportion of Bagatha girls (50.5%) are married followed by Konda Dora (46.6%). However, fertility is higher in places where marriages are concluded early and where the proportion of marriages is high. Marriage is the primary indication for women to the risk of pregnancy and helps in understanding fertility. It is evident from Table 6 that more than half of the females under study became pregnant before 21 years and almost all by the age of 27 years. The age at first conception ranges between 13 and 38 years.

The information on fertility of female respondents is shown in terms of number of conceptions, number of live births, and number of living children. Konda Dora tribe record high fertility in terms of mean number of conceptions (3.4), live births (3.2) and living children (2.8) closely followed by Koya Dora, Konda Reddi and Bagatha tribes. Bagatha and Konda Reddi tribes which are relatively advanced in literacy and agricultural economy record relatively lower mean conceptions (2.9) which is relatively similar to Gadaba tribe. The mean conceptions of Konda Dora are relatively more when compared with Savara, Khond, Gadaba and Jatapu tribes. The mean number of live births of Koya Dora (3.0) is found to be similar with Khond but relatively more than Savara, Gadaba, and Jatapu tribes. However, the mean number of living children of Koya Dora (2.4) is less than Savara (2.5), and found to be similar with Khond tribe and relatively more when compared with Gadaba and Jatapu tribes.

Prenatal and postnatal mortality data is presented in Table 8 and Table 9 respectively. The proportion of prenatal loss is reported in the form of abortions, miscarriages, stillbirths per conception. Bagatha reported higher proportion of abortions (2.3%), which is relatively lower than Savara. Very high proportion of stillbirths have been reported among Konda Reddi (7.0%) followed by Bagatha (4.7%) which is relatively high among Jatapu tribe. Still births are higher among males than females in majority of the tribes specifically among Bagatha tribe.

Post natal mortality in the form of death of child after live birth as infantile, juvenile or adolescent was calculated as percentage of live births and mean value as number of deaths per number of live births. The neonatal mortality is found to be high among Konda Reddi (8.0%) and least among Koya Dora (2.8%). Konda Reddi (9.3%) and Bagatha (7.8%) report higher infant deaths while Konda Dora (6.0%) exhibit the lowest IMR. However, the infant mortality rate is relatively more among Savara (9.2) and Gadaba (8.5) but less than Konda Reddi tribe. Overall, under 5 mortality records very high proportion among Koya Dora (15.2%) followed by Konda

Reddi (13%). It is reported that Savara tribe (13.9) experienced more U5 mortality than the present study tribes except Koya Dora. Koya Dora tribe reported relatively higher juvenile mortality (7.9%) and further Koya Dora (2.8%) and Bagatha (2.8%) reported relatively high proportion of adolescent mortality than other tribes.

Conclusion

The study tribes experienced high mean conceptions that ranged between 2.9 to 3.4 and the mean living children per couple ranged between 2.2 and 2.9 reported among the study tribes and notably reported high among Konda Dora tribe. The idea to replace the lost child increases the fertility performance which gradually deteriorates the reproductive health of the women. However, a relatively high proportion of prenatal and postnatal deaths were also reported among these tribes. Infant mortality is reported to be higher than juvenile mortality which reflects that the tribal children are exposed to greater risk during infancy. Several factors such as women's weak social status in society, low level of literacy, early age at marriage, early childbearing age which interacts in many ways with fertility and mortality. Hence, it is clear from the study that child mortality is influenced by fertility which alters the demographic trend of the tribal population.

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REFERENCES

- 1. Bharathi K. 2012. Anthropological Demography: A new synthesis of Anthropology, LAMBERT Academic Publishing GmbH & Co.KG, Germany.
- 2. Bhattacharya B, Singh KK, Singh U. 1995. Proximate determinants of fertility in Eastern Uttar Pradesh. *Human Biology*. 67: 867–86.
- 3. Bhuyan, KC. 1995. Socioeconomic factors influencing child mortality in Bangladesh. A case study. *J. Fam.Welfare*. 41(1): 15-23.

- 4. Choudhury A, Khan A and Chen L. 1976. The effects of childhood mortality experiences on subsequent fertility. *Popul Stud.* 30: 249-261.
- 5. Damodar S, Nair S, Singh L, Gulati BK., and Pandey A. 2015. Levels, Trends and Predictors of Infant and Child Mortality among Scheduled Tribes in rural India. *Indian J Med Res.* 141: 709-719.
- 6. Davis K. 1951. The Population of India and Pakistan. Princeton University Press, Vol. 113 (2943): 611, Princeton.
- Driver ED. 1963. Differential Fertility in Central India, Princeton University Press, Princeton.
- 8. Grundy E. 2009. Women's Fertility and Mortality in Late Midlife: A Comparison of Three Contemporary Populations. *Am.J.Hum.Biol.* 21:541-547.
- 9. Knodel, J. Van De Walle. 1967. Breastfeeding, fertility and infant mortality. An analysis of some early German data. *Popul Stud.* 2:109-131.
- 10. Rao VLN. 1991. Demographic profile of Savara and Jatapu. In: KN Reddy and DV Raghava Rao (eds). *Population Structures among Tribes*, Tamil University Press, Thanjavur.
- 11. Taylor C, Newman J, Kelly N. 1976. The Child Survival Hypothesis, *Popul Stud.* 30: 263-271.
- 12. UNICEF 2008. State of the World Children 2008: Child Survival, Newyork, U.S.A.
- 13. UN Report. 2012. UN Inter-agency Group for Child Mortality Estimation Report. Levels and Trends in Child Mortality.
- 14. Ware H. 1977. The Relationship between Infant Mortality and Fertility. Replacement and Insurance Effect. *Proceedings of the International Population Conference*. 1: 205-225. Lierge.
- Winegarden CR, Bracy, PM. 1995. Demographic consequences of Maternal-Leave Programs in Industrial Countries: Evidence from Fixed-Effects Models. South Econ J. 61:1020–35.

Fertility and Mortality Levels among Four Tribes of Eastern Ghats of Andhra Pradesh

Table 1: Level of Education among Men and Women from tribes of Eastern Ghats

		Non literate		Pri	mary	Seco	ndary	Higher	Secondary	Degree		
Tribes		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Bagatha	%	46.6	62.1	12.9	10.4	18.2	16.7	7.7	7.5	14.6	3.3	
Konda Dora	%	52.3	82.0	16.2	10.5	17.9	5.7	11.1	1.8	2.5	0.0	
Konda Reddi	%	44.8	63.3	21.2	12.8	21.2	12.8	10.8	6.2	2.0	0.9	
Koya Dora	%	45.8	61.5	20.5	12.7	20.5	12.7	6.8	8.0	8.8	3.8	
Khond	%	69.1	88.8	23.8	8.0	5.3	2.6	1.7	0.6	0.0	0.0	
Gadaba	%	78.9	92.0	13.1	5.5	6.1	2.0	1.9	0.5	0.0	0.0	
Savara	%	52.0	71.8	30.4	17.4	13.0	7.5	3.4	2.6	0.9	0.7	
Jatapu	%	53.9	75.8	18.1	11.2	18.5	8.6	5.6	3.0	3.9	1.3	

Table 2: Primary Occupation of Men and Women among Tribes of Eastern Ghats

Tribe		Agri	culture	Ot	hers	Emp	ployee	House wife	Labour / Daily wage	
		Male	Female	Male	Female	Male	Female	Female	Male	Female
Bagatha	%	40.1	65.8	23.5	0.0	12.1	2.5	18.4	24.3	13.3
Konda Dora	%	70.6	83.3	15.3	0.0	2.6	2.2	7.4	11.5	7.0
Konda Reddi	%	43.9	52.2	16.5	0.0	3.3	0.9	11.5	36.3	35.4
Koya Dora	%	43.0	48.5	15.7	0.0	8.0	2.7	17.3	33.3	31.5
Khond	%	69.8	82.0	3.2	0.0	2.1	6.1	0.0	24.9	11.9
Gadaba	%	61.9	59.2	2.9	1.5	1.6	5.5	0.0	33.6	33.8
Savara	%	77.7	87.8	3.4	1.4	3.8	5.6	0.0	15.0	5.2
Jatapu	%	61.2	40.6	0.6	0.3	3.2	2.6	17.2	34.9	39.2

Table 3: Type of Family and Annual Income among Tribes of Eastern Ghats

	Bagatha	Konda	Konda	Koya	Khond	Gadaba	Savara	Jatapu					
		Dora	Reddi	Dora									
Type of Family													
Nuclear (%)	80.0	87.3	85.3	71.8	52.63	60.97	53.29	-					
Joint (%)	20.0	12.7	14.7	28.2	47.37	39.03	46.71	-					
		Inco	me Per Ar	num									
House holds	150	150	150	170	247	269	167	-					
< Rs.30,000 (%)	55.3	60.7	66.0	64.7	90.7	83.3	88.0	-					
Rs.30,000- 60,000 (%)	38.0	35.3	34.0	35.3	8.1	14.5	9.0	-					
> Rs.60,000(%)	6.7	4.0	0.0	0.0	1.2	2.2	3.0	-					

Table 4: Age-Sex Structure of Tribes of Eastern Ghats

			0-14			15-29			30-49			50-64			15-64			≥65		To	tal
Tribe	?	M	Fem	Tot	M	Fem	Tot	M	Fem	Tot	M	Fem	Tot	M	Fem	Tot	M	Fem	Tot	M	Fem
Bagatha	%	11.30	12.11	23.43	15.88	16.67	32.55	17.76	17.45	35.22	3.93	3.14	7.07	37.58	37.26	74.84	1.26	0.47	1.73	50.16	49.84
Konda																					
Dora	%	18.41	17.71	36.12	16.18	15.76	31.94	13.11	12.41	25.52	2.65	2.23	4.88	31.94	30.40	62.34	0.84	0.70	1.53	51.19	48.81
Konda																					
Reddi	%	13.51	14.33	27.84	15.98	16.97	32.95	13.51	14.17	26.68	4.28	4.94	9.22	33.77	36.08	69.85	1.15	1.15	2.31	48.43	51.57
Koya																					
Dora	%	12.61	12.76	25.37	15.84	15.54	31.38	14.08	14.66	28.74	4.84	5.42	10.26	34.75	35.63	70.38	1.76	2.49	4.25	49.12	50.88
Khond	%	18.49	17.04	35.53	14.69	19.40	34.09	14.23	13.15	27.38	1.81	0.73	2.54	30.73	33.27	64.01	0.18	0.27	0.45	49.42	50.58
Gadaba	%	15.26	14.15	29.41	17.41	21.01	38.42	12.78	11.75	24.53	3.09	3.00	6.09	33.28	35.76	69.04	0.43	1.11	1.54	48.97	51.03
Savara	%	14.89	16.38	31.26	17.00	18.98	35.98	14.76	14.02	28.78	2.11	1.61	3.72	33.87	34.61	68.48	0.12	0.12	0.25	48.88	51.12
Jatapu	%	16.04	15.61	31.66	14.93	15.61	30.55	11.60	12.20	23.81	5.03	5.46	10.49	31.57	33.28	64.85	1.62	1.88	3.50	49.23	50.77

Table 5: Marital Status of Tribes of Eastern Ghats

Tribe		Unmarried		Married		Widower	Widowed	Divorced/	Separated	Total (No.)	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bagatha	%	47.6	39.4	49.8	50.5	2.5	9.1	0.0	0.9	319	317
Konda Dora	%	54.8	50.0	44.1	46.6	1.1	3.4	0.0	0.0	367	350
Konda Reddi	%	50.0	42.2	49.7	46.3	0.3	11.2	0.0	0.3	294	313
Koya Dora	%	52.8	37.8	46.3	44.1	0.9	18.1	0.0	0.0	320	347
Khond	%	47.7	44.1	52.3	51.1	-	3.8	-	1.1	545	558
Gadaba	%	33.3	32.4	64.5	62.2	1.7	5.0	0.2	0.3	571	595
Savara	%	47.5	48.3	49.5	47.3	1.3	3.2	1.8	1.2	394	412
Jatapu	%	48.4	42.7	50.6	50.3	0.5	0.5	0.5	6.6	577	595

Table 6: Age at First Conception and Mean Age at First Conception among Tribes of Eastern Ghats

Tribe								Age a	t First (Conce	otion (Y	ears)								Total	Mean age
		13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	32	38		
	N	1	8	16	26	18	17	20	21	8	4	4	0	2	0	1	0	0	0	146	17.93
Bagatha	%	0.7	5.5	11.0	17.8	12.3	11.6	13.7	14.4	5.5	2.7	2.7	0.0	1.4	0.0	0.7	0.0	0.0	0.0	100.0	
	N	2	5	14	24	20	27	15	10	5	16	3	0	3	0	1	0	0	1	146	18.27
Konda	%																				
Dora		1.4	3.4	9.6	16.4	13.7	18.5	10.3	6.8	3.4	11.0	2.1	0.0	2.1	0.0	0.7	0.0	0.0	0.7	100.0	
	N	2	7	14	31	20	23	13	13	4	3	4	5	1	0	0	1	1	0	142	17.87
Konda	%	1 4	4.0	9.9	21.0	1.4.1	16.2	0.2	9.2	2.8	2.1	2.8	3.5	0.7	0.0	0.0	0.7	0.7	0.0	100.0	
Reddi	N	1.4	4.9	14	21.8	14.1 21	16.2 24	9.2	11	6	2.1	2.8	4	3	0.0		0.7	0.7	0.0		17.60
Vorre	%	3	-	14	33	21	24	11	11	0	1		4	3	1	4	U	U	U	156	17.00
Koya Dora	90	1.9	11. 5	9.0	21.2	13.5	15.4	7.1	7.1	3.8	0.6	1.3	2.6	1.9	0.6	2.6	0.0	0.0	0.0	100.0	
		<14 ye	ars			5-19 yea					-24 yeaı	'S				ı	years	l	•		1
Khond	N		9			196					8						3			230	17.23
	%	3.	.91			85.21					6.77					1.	30			100.0	
Gadaba	N		7 225							20						2			254	17.06	
	%	2.	.75	88.58			7.87			0.79						100.0	17.00				
Savara	N		1 116			40			4						161	18.12					
	%	0.	.62			72.04					24.84					2.	48			100.0	10.12

Table 7: Fertility among Tribes of Eastern Ghats

	Bagatha	Konda Dora	Konda Reddi	Koya Dora	Khond (Bharathi, 2012)	Gadaba, (Bharathi, 2012)	Savara (Bharathi, 2012)	Jatapu, (Rao, 1991)
Conceptions				I	1			
Number	429	517	442	525	776	771	535	687
Mean per woman	2.9	3.4	2.9	3.1	3.1	2.9	3.2	3.0
Live Births								
Number of Males	212	246	194	250	361	352	232	
Number of Females	184	238	205	257	382	373	256	
Total	396	484	399	507	743	725	488	572
% for Conceptions	92.3	93.6	90.3	96.6	95.7	94.0	91.2	83.26
Mean per Women	2.6	3.2	2.7	3.0	3.0	2.7	2.92	2.46
Sex Ratio at Live Birth (F/M*1000)	868	967	1057	973	1058	1060	1103	
Sex Ratio	994	954	1065	1036	1024	1042	1045	1031
Living Children								
Number of Males	170	220	154	198				
Number of Females	164	201	173	211				
Total	334	421	327	409	604	618	415	511
% for live births	84.3	87.0	81.9	80.7	81.1	85.2	85.0	89.3
Mean per Women	2.2	2.8	2.2	2.4	2.4	2.3	2.5	2.2

Table 8: Prenatal Mortality among Tribes of Eastern Ghats

	Bagatha	Konda Dora	Konda Reddi	Koya Dora	Khond (Bharathi, 2012)	Gadaba (Bharathi, 2012)	Savara (Bharathi, 2012)	Jatapu (Rao, 1991)
Conceptions		ı						<u>I</u>
Number	429	517	442	525	776	771	535	687
Mean per Woman	2.9	3.4	2.9	3.1	3.1	2.9	3.2	3.0
Abortion				1	l	<u> </u>	<u> </u>	
Number	10	11	8	2	8	4	16	9
% for Conceptions	2.3	2.1	1.8	0.4	1.0	0.5	3.0	1.3
Miscarriages				1	l	<u> </u>	<u> </u>	
Number	3	1	4	4	3	13	2	6
% for Conceptions	0.7	0.2	0.9	0.8	0.4	1.7	0.4	0.9
Still Births								
Number of Males	14	12	17	9	10	14	16	
Number of Females	6	9	14	3	12	15	13	
Total	20	21	31	12	22	29	29	100
% for Conceptions	4.7	4.1	7.0	2.3	2.8	3.7	5.1	14.41

Table 9: Postnatal Mortality among Tribes of Eastern Ghats of Andhra Pradesh

Tribe		Postnatal mortality											
Tibe		Neonatal	Infant	U5M	Juvenile	Adolescence	Adult	Total	Total				
	N	21	31	46	15	11	5	62	95				
Bagatha	%	5.3	7.8	11.0	3.8	2.8	1.3	15.6	22.0				
	\bar{X}	0.14	0.21	0.31	0.1	0.07	0.03	0.41	0.63				
	N	19	29	48	19	13	2	63	96				
Konda Dora	%	3.9	6.0	9.9	3.9	2.7	0.4	13.0	18.6				
	\overline{X}	0.13	0.19	0.32	0.13	0.09	0.01	0.42	0.64				
	N	32	37	52	15	10	10	72	115				
Konda Reddi	%	8.0	9.3	13.0	3.8	2.5	2.5	18.0	26.0				
	\bar{X}	0.21	0.25	0.34	0.1	0.07	0.07	0.48	0.77				
	N	14	37	77	40	14	9	152	170				
Koya Dora	%	2.8	7.3	15.2	7.9	2.8	1.8	30.0	32.4				
	\bar{X}	0.08	0.22	0.45	0.23	0.08	0.05	0.89	1.0				
Khond	N	17	35	68	33	71	-	139	172				
(Bharathi,	%	2.3	4.7	11.0	4.4	9.5	-	18.7	22.1				
2012)	\bar{X}	0.07	0.15	0.29	0.14	0.30	-	0.60	0.75				
Gadaba	N	25	62	88	26	19	-	107	153				
(Bharathi,	%	3.4	8.5	12.1	3.6	2.6	-	14.8	19.8				
2012)	\overline{X}	0.10	0.24	0.35	0.10	0.07	-	0.42	0.60				
g	N	2	45	68	23	5	-	73	120				
Savara (Bharathi,	%	4.1	9.2	13.9	4.7	1.0	-	15.0	22.4				
2012)	\bar{X}	0.12	0.28	0.42	0.14	0.03	-	0.45	0.74				
Jatapu	N	-	19	37	18	24	-	61	176				
(Rao, 1991)	%	-	3.3	6.5	3.1	4.2	-	10.6	25.6				
	\bar{X}	-	0.09	0.18	0.08	0.11	-	0.29	0.84				