



## Full Length Research Article

### DROUGHT AND WOMEN'S HEALTH STATUS: A STUDY OF KADAPA DISTRICT, ANDHRA PRADESH

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#### ABSTRACT

There are several senses in which the health of women and girls can be considered as the basic indicators for the health of the society. Precisely because of gender discrimination, the health conditions of females generally tend to lag behind those of males, and therefore absolute improvement in these conditions is a reasonable indicator that the overall health conditions of that society are also getting better. The present study examines women's health in drought prone areas in Kadapa District in the divided residuary Andhra Pradesh. In Kadapa district, as per 2011 Census, 66.03 % population live in rural areas. The total Kadapa district population living in rural areas constitutes 1,903,337, of which males and females represent 959,693 and 943,644 respectively. The sex ratio is 983 females per 1000 males. Literacy rate is 63.15 % as per 2011 Census. Gender wise, male and female literacy stood at 74.72 and 51.49 per cent respectively. The health conditions of women in the district as per WHO standards seem to be low. Various factors such as lack of intake of nutritious food, improper health facilities, inaccessibility, low income, illiteracy, ignorance, adherence to superstitious beliefs and lack of awareness are the attributing factors. It is suggested that concerted and sustained efforts coupled with social welfare measures are imperative to improve the standards and quality of health of rural women in the district which would in turn improve the overall health of the nation.

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#### INTRODUCTION

Health has been defined as a state of complete physical, mental and social well being and not mere absence of infirmity (WTO). Health and everything related to it is an extremely emotional issue. From an economic perspective, the rules that determine the allocation of resources rather than the amount of expenditure on health are of interest. They indicate if the participants involved- both those supplying and those demanding health care services- have incentives to use scarce resources efficiently (Zifil *et al.*, 1997). In this paper, an attempt is made to study common diseases, problems related reproduction facilities, Infant Mortality Rate, Maternal Mortality Rate, Child Sex Ratio in Kadapa District, Rayalaseema Region of Andhra Pradesh. Kadapa is Drought Prone Area, cultivation depends on monsoon which is erratic and the average annual rainfall in the district is 696.6 mm which is insufficient for cultivation. Out of 51 Mandals, nearly 38 Mandals considered as Drought Mandals. The data is collected from secondary sources i.e., Census of India, Sample Registration System, Hand Book of Statistics, Chief

Planning Officer, Kadapa and District Medical and Health Officer (DMHO), Kadapa. India still remains overwhelmingly rural, with nearly 60 per cent of the Indian population of the still residing villages. Out of the total of 1210.2 million population in India, the size of rural populations is 833.1 million or 68.84 per cent of the total population. During 2001-11 the growth of Rural Population has been 12.18 per cent. From 74.3 million (2001 Census), it has increased to 83.3 million as per Census of 90.4 million. In fact, sex ratio in rural areas always stood higher than that in urban areas. It indicates that the urbanization process in India failed to bring about the desired social and attitudinal changes towards women. It is clear from the following Table 1.1. When it comes to sex ratio, there is slight improvement in comparison to 2001 data but the child sex ratio has decreased to 914 in 2011 from 927 in 2001. Table 1.2 represents the sex ratio of female out of male per 1000 across the World. The number of females per one thousand males in India was 930. To compare with developed and less developed countries India has declined to the lowest level. According to World Development Report (2009), the percentage of total expenditure on Health Sector in India is only 2.5 per cent. A comparative analysis of health investment reveals that the performance of Sri Lanka, Bangladesh in the health sector is more satisfactory compared

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to India. Government expenditure in Bangladesh is about 5.3 percent, Srilanka, 6.2 per cent, Pakistan 2.05 percent, UK 15.7 percent, USA 18.6 percent while in Germany it is 20 per cent.

**Table 1. Rural-Urban wise Sex Ratio**

Year	Rural	Urban	Total	Difference
1901	979	910	972	69
1911	975	872	964	103
1921	970	846	955	124
1931	966	838	950	128
1941	965	831	945	134
1951	965	860	946	105
1961	963	845	941	118
1971	949	858	930	91
1981	951	879	934	72
1991	938	894	926	44
2001	946	900	933	46
2011	947	926	940	21

Source: Census of India

**Table 2. Sex Ratio in the World**

Region/ Country	Sex Ratio/F/1000M
Europe/ North America	1050
Central Asia	1040
Caribbean	1030
Sub Sahara Africa	1020
South East Asia	1000
Latin America	1000
South Asia	1000
India	930

Source: The World's Women-Trends and Statistics, UN, NY, 1995

Amartya Sen (2001) illustrated with examples the different kinds of inequality between men and women that exist most parts of the World. These are: i) mortality inequality ii) natality inequality, iii) basic facility inequality, iv) special opportunity inequality, v) professional inequality, iv) special opportunity inequality, v) professional inequality vi) ownership inequality and vii) household inequality. Mortality inequality may be ascribed to differential treatments by the society females starting from childhood. By natality inequity, Sen wanted to mean sex-selective abortion that is illegally practised in some countries. In India, despite rapid strides in socio-economic development, health and education, the widening economic, regional and gender disparities are posing challenges for the health sector. About 75 per cent of health infrastructure is concentrated in urban areas where only 27 per cent of the population lives. The health status of Indians is still a cause of concern. This is reflected in the life expectancy (63 years), infant mortality rate 44/1000 live births, maternal mortality rate 212/100,000 live births. The Sex ratio in the State of Andhra Pradesh was up from 978 in 2001 to 992 in 2011 and is higher than All India figures of 940 in 2011. A few of indicators in India as well as Andhra Pradesh is following Table 3.

The gender inequality and mortality analysis reveals that the life expectancy of male and female in India is comparable (65.77 for males and 67.95 for females, 2011 estimates). This small difference also refers to the low social status of the women in the country (Santow, gigi, 1995). Education plays the role of foundation stone in the overall socio-economic development of a country. It is an effective tool for the empowerment of a community. Despite several measures

taken by Central and State Governments, literacy rate remains to be low in Andhra Pradesh particularly in the case female literacy is 59.74 and it is 65.46 in India.

**Table 3. Selected Health Indicators in India**

Indicators	Andhra Pradesh	India
Total Population (In Crore) (Census 2011)	8.4	121.01
Total decadal growth (%) (Census 2011)	11.1	17.64
Infant Mortality Rate (SRS 2011)	43	44
Maternal Mortality Rate (SRS 2007-09)	134	212
Total Fertility Rate (SRS 2011)	1.8	2.4
Crude Birth Rate (SRS 2011)	17.5	21.8
Crude Death Rate (SRS 2011)	7.5	7.1
Natural Growth Rate (SRS 2011)	10.0	14.7
Sex Ratio (Census 2011)	992	940
Child Sex ratio (Census 2011)	943	914
Schedule Cast Population (In Crore) (Census 2001)	1.23	16.6
Schedule Tribe population (In Crore) (Census 2001)	0.50	8.4
Total Literacy Rate (%) (Census 2011)	67.6	74.04
Male literacy Rate (%) (Census 2011)	75.56	82.14
Female Literacy Rate (%) (Census 2011)	59.74	65.46

Source: RHS Bulletin, Ministry of Health and Family Welfare, March 2012

**Table 4. Health infrastructure in Andhra Pradesh**

Particulars	Required	In position	Shortfall
Sub-centre	12283	12522	*
Primary Health Centre	2004	1624	380
Community Health Centre	501	281	220
Health worker (Female)/ANM at Sub Centres & PHCs	14146	21853	*
Health Worker (Male) at Sub Centres	12522	4608	7914
Health Assistant (Female)/LHV at PHCs	1624	2251	*
Health Assistant (Male) at PHCs	1624	0	1624
Doctor at PHCs	1624	3448	*
Obstetricians & Gynecologists at CHCs	281	99	182
Pediatricians at CHCs	281	110	171
Total specialists at CHCs	1124	346	778
Radiographers at CHCs	281	65	216
Pharmacist at PHCs and CHCs	1905	1851	54
Pharmacist at PHCs and CHCs	1905	1851	54
Laboratory Technicians at PHCs and CHCs	1905	1422	483
Nursing Staff at PHCs and CHCs	3591	4177	*

Source: RHS Bulletin, Ministry of Health and Family Welfare, March 2012

Andhra Pradesh is the fifth largest state in the Country, in terms of population. As per the Census-2011(Provisional), the State accounts for 7.0 per cent of the total population in the country. There is shortage of infrastructure facilities in Andhra Pradesh, the details is given table 1.4. . The State is one of the supplier of medical graduates to the United States and United Kingdom. Yet, its own rural areas have remained chronically deprived of professional doctors.

### A Brief Profile of Kadapa

Rayalaseema region, comprising of Kadapa, Kurnool, Anantapur and Chittoor, lies in the rain shadow zone of Western Ghats. Consequently, this area receives very low rainfall during the South West and the North East monsoons as well. The rainfall of 365.8 mm of the Khariff period in Rayalaseema is still distributed and undependable. It is utterly inadequate even to raise the dry crops like groundnut or jowar. Kadapa District is the extreme south eastern district of Andhra

Pradesh rainfall situated within the geographical co-ordinate of 13043' and 15014' of northern latitude and 77055' and 79029' eastern longitude. The latitude varies from 269 to 3787 meters above sea level. The District is bounded on north by Kurnool District, on the south by Chittoor District on the west by Anantapur District and on the east by Nellore District. Total Geographical area of the District is 15,379 Sq.Kms. with 3 Revenue Divisions, 51 mandals, 831 Gram Panchayats, 965 Revenue Villages and 4533 Habitations. As per the 2011 Census the population of the District is 2882469 of which the Rural Population is 1903337 and the Urban Population is 979132. The density of population in the District is 188 per Sq.Km. The total geographical area of Y.S.R. District is 1535900 hectares which constitutes an extent of forest is 500961 hectares, Barren & Uncultivable land is 221994 hectares, Land put to Non-agricultural uses is 181029 hectares, Cultivable Waste is 46013 hectares, Permanent Pastures and other grazing lands is 9409 hectares, Land under miscellaneous tree crops & groves not included in net area sown is 6831 hectares, Current fallows is 135935 hectares, Other fallow land is 80861 hectares and Net Area Sown is 352762 hectares and Area sown more than once is 80208 hectares during the year 2011-12.

Kadapa district is drained by the Penneru Basin and its tributaries. The chief northern tributaries to Penneru are the Kunderu, Sagileru and the southern tributaries – the Cheyyeru, Papaghni and the Chitravati. The Soils in the district are of two types i.e., Red Ferruginous and Black Soils. Black Clay is the most superior soil in the district, which occupies 23.7% area in the district. The district is rich in Minerals value. The Major Minerals in the district are Barites, Lime Stone and Asbestos. The average annual rainfall in the district is 696.6 mm. The rainfall generally increases from the North-West to the South-East in the district. The rainy season starts from June and lasts till November. October is the month with the highest normal rainfall. The rainfall in South-west monsoon period is most important for the sowings of dry crops in the district which covers 75% of the total cropped area.

The Majority of the people here are depend on Agriculture only. The major crops in the District are Paddy, Groundnut, Sunflower, Cotton, Betel leaves and Horticultural crops like Mango, Papaya, Banana, Lemon and Oranges. The Major Source of Irrigation is under K.C. Cannal. There is a Major Irrigation Project on Penna at Mylavaram. Pincha Project, Lower Sagileru Project, Upper Sagileru Project, Annamay Project, Brahma Sagar Project and Pulivendula Branch Canal are Medium Irrigation Projects in the District. The district has been served by 3312 primary schools, 537 upper primary schools, 730 high schools, 126 junior colleges, 46 Degree Colleges and Yogi Vemana University offering P.G. courses for general education. For Technical education the District has 9 polytechnics and 26 Engineering colleges, Rajiv Gandhi Institute of Medical sciences, 1. Dental college, 1 Homoeopathic Medical college, 1 Veterinary college and 1 IIIT centre at Rajiv Knowledge Vally. As mentioned earlier, Kadapa District is Drought Prone Area, according to Manual for Drought management, Drought is as follows:

Drought is a temporarily aberration unlike aridity, which is a permanent feature of climate seasonal aridity (i.e., well

defined dry season) also needs to be distinguished from drought. Thus drought is a normal, recurrent feature of climate and occurs in all climate regimes and is usually characterized in terms of its spatial extension, intensity and duration, conditions of drought appear when the rainfall is deficient in relation to the statistical multi-year average for a region, over an extended period of a season or year, or even more. Drought produces both direct and indirect impacts. Direct impacts or primary impacts are usually physically/material and include reduced agricultural production; increased fire hazard; depleted water levels; higher livestock and wildlife mortality rates; and damage to wildlife and fish habitats. Social impacts arise from lack of income causing out migration of the population from the drought affected areas. People in India seek to cope with drought in several ways which affect their sense of well-being; they withdraw their children from schools, postpone daughter's marriages and sell their assets such as land or cattle. In addition to economic hardships, it causes a loss of social status and dignity, which people find hard to accept. Inadequate food intake many lead to malnutrition, and in some extreme cases, cause starvation. Access and use of scarce water resources generate situations of conflict, which could be socially very disruptive. Inequalities in the distribution of drought impacts and relief may exacerbate these social tensions further. There are eight Administrative Districts chronically affected by drought conditions in Andhra Pradesh, namely, Anantapur, Chittoor, Kadapa, Hyderabad, Kurnool, Mehaboobnagar, Nalgonda and Prakasam, (Manual for Drought Management, 2009).

#### **Drought Benefits**

Droughts but may not be avoidable, but their effects can be (Amartya Sen, 1981).The weather and climate modification schemes proposed by the Government as follow:

- Contingency Crop Plan to support Farmers for sowing of Dry crops.
- Inputs, Credit and Power supply to Farmers
- Relief Employment under NREGS
- Crop Insurance
- Gratuitous Assistance to old, disable, destitute persons, Women and Young Children who are not receiving Government Pensions etc.
- Relief through Tax waivers, concessions and postponement of certain dues such as irrigation and electricity charges
- Cattle camps and supply of Fodder and Fodder Seeds
- Health and Hygiene camps to eradicate water born epidemics and other infectious diseases
- Nutrition aspects of Food Security through Public Distribution System, ICDS and Mid Day Meals Programme
- Relief Fund and Local Area Development Fund for Drinking Water and others
- Integrated Watershed Management Programme – Water harvesting and conservation
- Water saving Technologies – Drip and Sprinkler Irrigation Systems

- Climate variability and adaption – Pests and diseases management
- Long term Irrigation Management
- Immediate Institutional Response
- Information Management and Media Co-ordination
- Afforestation

**Table 5. List of Drought Mandals in Kadapa (2001-14)**

Year	No. of the Mandals under Drought	No of the Mandals Under lack of Drinking water
2001-02	2	-
2002-03	6	45
2003-04	32	-
2004-05	49	-
2005-06	-	-
2006-07	33	-
2007-08	-	-
2008-09	-	-
2009-10	51	-
2010-11	-	-
2011-12	51	-
2012-13	51	-
2013-14	16	-

Source: Chief Planning Officer, Kadapa

There are several factors responsible for the current status of women, one is the culture itself. Women are subjected to selective malnourishment from birth. There is strong preference for the male child in several states promoting illegal sex determination and female foeticide. This not only poses threat to the expectant other's physical and mental health but also imbalances the sex ratio, thereby giving rise to several other social problems (Sen, 1992). The above table clearly shows that, social inequality is the foremost reason for the staggering number of maternal and child Deaths. Infant mortality is an important component of mortality in general and a crucial factor in indicating health status. According to SRS Report 2012, and Census 2011, is painful to note that, child sex ratio (0-6) of Kadpa is 919 per 1000, MMR 110 per 100000 and IMR is 40 per 1000 live births. Health of the individual is depending on the availability of health services and health environment. Above table 2.4. exhibits the different services for safe child delivery in kadapa district. 11801 childbirths took place in private hospitals, 5341 in Govt. Institutions and total institutional deliveries is 17142 (either PHC or CHC set-up). Those who preferred to have childbirth at home are 663. Nearly, 82 per cent of the population under Below Poverty Line (BPL) in Kadapa.

**Table 6. IMR and MMR of Kadapa**

Year	Live Births	Infant Deaths	Infant Mortality Rate	Maternal Deaths	Maternal Mortality Rate
2009-2010	51569	805	16	67	130
2010-2011	51136	647	13	50	98
2011-2012	54726	690	13	55	101
2012-2013	53351	835	16	65	122
2013-2014	51780	746	15	41	79

Source: DMHO, Kadapa. IMR=Infant Deaths/Live Births\*1000  
MMR=Maternal Deaths/Live Births\*100000

**Table 7. Maternal Health-Deliveries in Kadapa**

Indicator	Target	Achievement	% of prop Target
Total Deliveries Conducted	18979	17805	93.8
Total Institutional Deliveries	18979	17142	90.3
Total Home Deliveries	17805	663	3.7
Deliveries at Govt. Institutions	17805	5341	36.1
Deliveries at Private Institutions	17805	11801	66.3

Source: DMHO, 2012-13

**Table 8. Health Facilities Information of Kadapa District**

Particulars	Total
Revenue Divisions (Kadapa, Rajampeta, Jammalamadugu)	3
No. Of Mandals	51
No. Of Villages (Revenue)	965/892
Gram Panchayats	791
BPL Population	82%
CHCs	14
PHCs	72
Sub Centres	448
CEONC Centres	
District Hospitals, (Proddutur)	16
Area Hospital, (Pulivendula)	1
Medical Colleges (RIMS)	1
Govt. Hospital, (Badvel)	1
Asha Workers	2336
Aganwadi Centres	3615
Anganwadi Supervisors	148
CDPOS	14
Round the Clock Women Health Centres	34

Source: District Medical and Health Officer, Kadapa, 2012-13

The analysis shows that majority of the low-income group preferred Government hospitals for child delivery or they preferred home for child delivery. On the other hand, majority of the middle and high-income group preferred private hospitals. There is ICDS Scheme is the single largest centrally sponsored integrated programme of Child Development scheme. It was started in 1975-76 in 2 erstwhile blocks on a pilot basis and spread in to all mandals in the state. The universalization of ICDS with quality and revised norms from April, 2007 increased the spread of ICDS. There are 387 ICDS projects (300n in Rural areas, 29 in tribal areas and 58 in urban areas) with 91,307 anganwadi centers in Andhra Pradesh. Details of ICDS projects and anganwadi centres in Kadapa are shown in following Table.

#### Services Provided by ICDS Scheme are:

- Supplementary nutrition to 6 months to 6 years aged children, pregnant and lactating mothers.
- Immunization of children and women.
- Health check-ups to children and women.
- Referral services to children and women.
- Nutrition and health education to mothers and adolescent girls.
- Non-formal pre-school education to 3-6 years children.

**Common Diseases in Kadapa:** Vector Borne Diseases predominant in the district are:

- Malaria- caused by Anopheles mosquito
- Dengue – caused by Aedes Mosquito
- Chikungunya- caused by Aedes Mosquito
- Japanese Encephalitis – Culex Mosquito

The common disease and the number of persons affected by the disease are presented in table 2.6. Malaria, water borne disease, had affected 149 persons out of 2,14,132 samples. In the case of Dengue it is 5 out of 22 samples.

**Table. Diseases Status in Kadapa**

Disease	No. Of Samples Tested	Positives
Malaria	2,14,132	149(PV =110+PF=39)
Dengue	22	5
Chnyanguiku	0	0
Japanese Encephalitis	0	0

Source: Field Staff, done by (ANM) 2012-13

**Table 2.7 Year-wise Comparative Statement of Malaria Incidence and Risk Population**

Parameters	2011	2012	2013	2014
Total Population	2914715	2954208	2996355	3015674
Total no. Of positives	1160	668	194	124
No. Of Habitations	271	311	160	194
No. Of Sub-centers	115	126	64	72
No. Of PHCs	26	38	28	34
No. Of CHNCs	9	13	12	12
District Population	2914715	2954208	2996355	3015674
Risk Population	110648	118987	35007	45278
% of Risk	3.8	3.97	1.18	1.50

Source: DMHO 2012-13, Kadapa

**Table: Water Borne Diseases Status in Kadapa**

Disease	Year 2011	2012	2013
Diarrhea	231/0	141/1	219/2

Source: DMHO, 2012-13, Kadapa

Water Borne diseases are due to stagnation of water in Agricultural fields near KC Canal Belt, and in Mines, and linkage of water pipes to the drainage in Kadapa. The total outbreaks of Diarrhoea 231 in 2011 eaks oThere are risk Mandals for Diarrhea, they are- Duvvur, Khajipet, Vallur, Chapadu, Ramapuram, Atlur, Narasapuram, Veeraballi, Chitvel and Gopavaram.

The literacy rate in Kadpa District for the five decades are given in table

**Table. Gender-wise Literacy in Kadapa 1971-2011**

Year	Male	Female
1971	36.2	12.7
1981	43.8	17.7
1991	65.8	33.9
2001	76.9	50.76
2011	78.4	56.77

Source: Hand Book of Statistics, Directorate of Economics and Statistics, Govt. AP.

In 1990s there was another major development theory propounded by Amartya Sen and others on human capability (Sen, 1985). Sen used the capabilities in two senses. One is actual attainment of various components of standard of living, state of health, education and so on. The other is potential of the persons concern to attain these capabilities. As education holds the key to development, women education should be considered more seriously. As shown in table the female literacy rate is far below of male literacy. The literacy of the female has increased from 12.7 per cent in 1971 to 56.77 per cent in the year 2011.

#### Conclusions

The 73<sup>rd</sup> Amendment of the Indian Constitution is an important in the history of gender empowerment in India. Women have moved one step forward in participating in Gram Panchayats and other political activities. According to Sen (2001), women's gainful employment and literacy play a significant role in improving Female population to Male Population (FMR). Kerala is one example which stands for literacy. Female life expectancy in Kerala is also very high. Kerala also has other features which may influence FMR values. The Nairs of Kerala have the custom of female ownership of property. Moreover about 20 per cent population in Kerala is Christians. Female literacy and female labour participation have significant effect on mortality and fertility. Kadapa has high potentialities for development it is the retository of mineral resources there is a vast to scope for development of this district provided a concerted and sustained efforts is required. To improve the health condition of women in particular and the standard of living in general. We need to take the following measures which account.

- Female literacy rate needs to be improved , because Education is a key driver of Gender Equality
- To reduce the IMR and MMR constant awareness programme should be taken up
- Nutritional standards should be increased
- PHCs and CHCs should be strengthened in rural areas, NGO's should also play a key role in this direction

- Epidemic drugs should be kept in storage to meet emergency needs.
- The number of doctors, nurses and paramedical workers for 1000 population is low. There is a shortfall of budget particularly for rural health care centers and for deprived weaker sections of the population.

Conspicuously, Education, Health, Nutrition, Water and Sanitation are complements to each other. Education plays a very crucial role in the society. It has positive impact on health, which in turn leads to socio-economic transformation.

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