ORIGINAL

Risk Profile of Pregnant Mothers in the Coastal Area of Udupi Taluk, India

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ABSTRACT

A demographic and obstetric profile of pregnant mothers attending the Rural Maternity and Child Welfare homes was carried out through a cross-sectional study. In 613 registered pregnant mothers, the prevalence of risk factors related to age of the mother, parity, weight, haemoglobin level and Rh negative blood group, bad obstetric history and pregnancy related diseases were analysed. Prevalence of teenage pregnancy and primigravida accounted for 7 and 34.7 percent respectively. Nearly 17 percent of mothers had weight less than 40 kg and 28 percent of mothers were found to be anaemic (HB less than 8 gm%). Twenty percent of the mothers did not have even a single risk factor whereas 33.8 percent of mothers had at least one risk factor and 20 percent had multiple risk factors of 3 or more. Previous bad obstetric history, pregnancy related diseases and Rh negative blood group accounted for 9.2, 3.9 and 2.7 percent respectively.

It is well recognised that survival of the newborns depends to a large extent on maternal health. Several factors operating during pregnancy result in high morbidity and mortality in mothers as well as infants.[1] Risk approach in maternal and child health care is one of the most simple, cost effective managerial strategy to bring down the incidence of low birth weight babies, perinatal mortality, maternal mortality etc.[2]

The philosophy of underlying risk approach is based on the assumptions[3] that

1) high risk group occurs in small segments of the population

2) it is possible to identify the high risk group on profile of various factors

3) provision of appropriate health care to the identified small high risk group.

Risk approach in essence is to provide better services for all, but with special attention to those who need them most.

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Analysis of risk factors from time to time is necessary for such a managerial approach. Rapid community based and hospital based cross sectional surveys can provide this information in a relatively short time.[3] A number of studies have been conducted in our country on the risk profile of pregnant mothers, while only a few such studies have been conducted in Karnataka State. The present study was conducted to highlight the risk profile of pregnant mothers in the coastal area of Udupi Taluk and to determine the prevalence of risk factors.

METHODS

Dakshina Kannada is one of the socio-economically developed districts in Karnataka State.[4] The overall literacy level particularly among females is very high (over 60 percent). The mean age at marriage for females is as high as 22.4 years. There are plenty of opportunities for employment of females. Health facilities are available and their utilisation rates are high. The birth rate reported by district authority is 20 per 1000 population. A recently conducted survey in the district revealed an infant mortality rate of 30 per 1000 live births.[4]

Maternal and child health services are provided to the 60,000 population residing in the coastal area of Udupi Taluk, through a network of Rural Maternity and Child Welfare homes, which are under the direct administrative control of the Department of Community Medicine, Kasturba Medical College, Manipal. Each Rural Maternity and Child Welfare (RMCW) home caters to a population of 10,000 and staffed by 2 ANMs (one field ANM and one staff ANM), one Ayah and one Sweeper.

These RMCW homes provide the entire range of MCH care including institutional deliveries and post partum sterilisation services throughout the year. Complicated deliveries are attended by specialists from the Kasturba Hospital and those which require referral are evacuated through a flying squad service.

Besides these services, weekly specialists clinics are conducted by a team of specialists from the Department of Obstetrics & Gynaecology, Paediatrics and Community Medicine. They provide antenatal care, postnatal care, under five care, viz., growth monitoring, immunisation, treatment of minor ailments and health education.

We have a well established system of domiciliary MCH care through systematic home visits by the ANMs. Registration of pregnant mothers is about 100 percent. Over 90 percent of pregnant mothers have had 3 antenatal checkups at the RMCW homes and institutional deliveries accounted for over 97 percent of total deliveries in this region. Under such prevailing conditions, it is reasonable to presume that the findings of the Rural Maternity home based descriptive study reflects the true situation in the community and therefore the findings can be generalised.

Table 1
Criteria for common risk factors

Characters	*Criteria*
1) Maternal age (years)	<20 & 35 +
2) Parity	primi & multi (4 and above)
3) Maternal weight (kg)	<40
4) Maternal haemoglobin (g%)	<8
5) Bad obstetric history	Abortion, LSCS, PPH, perinatal & neonatal death
6) Pregnancy related diseases	PIH, APH
7) Rh blood group	Negative

Mothers registered at the time of their first visit at antenatal clinics during a 5 months period from 15th March 90 to 14th August 90 at 5 RMCW homes were considered as subjects for this study. A good system of record keeping has evolved and is maintained at these centres. These data was compiled, tabulated and analysed by reviewing these case records. Certain common yet important risk factors like age of the mother, parity, previous bad obstetric history, anaemia and blood group, maternal weight and pregnancy related diseases were studied.[2,3,5] The criteria for these risk factors are given in Table 1. Statistical inferences were drawn by applying student 't' test and Chi square test, level of significance was $P<0.05$.

RESULTS

A total of 613 pregnant mothers were registered during the study period. They comprised of 74 percent Hindus, 18 percent Muslims and 8 percent Christians.

Teenage mothers accounted for 7 percent of the total. Primigravida mothers accounted for 34.7 percent whereas gravida 4 and above were only 12.9 percent (Table 2)

Majority of the pregnant mothers were found to be registered for antenatal care at 25 weeks of gestation (Table 3).

Table 2
Distribution of mothers according to their age and gravidae

n=613

Age group in years	*Gravidae*					*Total (%)*
	1	*2*	*3*	*4*	*5+*	
15 – 19	33	4	6	0	0	43 (7.0)
20 – 24	112	76	25	11	2	226 (36.8)
25 – 29	55	94	83	30	8	270 (44.3)
30 – 34	12	10	16	9	10	57 (9.2)
35 +	1	2	4	5	5	17 (2.7)
Total	213	186	134	55	25	613
% od Total	34.7	30.3	21.8	8.9	4.3	100.0

Table 3
Mean gestation period (week) at the time of first visit

n=613

Age group in years	*Gravida*			
	1	*2*	*3*	*4+*
15 – 19	25.18 (7.45)	14.38 (13.34)	23.9 (7.69)	20.0
20 – 24	25.68 (7.62)	26.45 (7.69)	25.98 (8.87)	29.96 (5.65)
25 – 29	26.75 (5.82)	24.81 (6.08)	25.99 (8.02)	25.36 (8.56)
30 – 34	24.75 (6.52)	18.85 (7.26)	24.47 (6.07)	21.95 (12.52)
35 +	17.50	25.00	23.13 (2.63)	35.50 (4.74)
Mean	25.79 (7.12)	24.94 (7.31)	25.58 (7.20)	26.62 (9.67)

P>0.05 between all gravida mothers
Figures in parentheses indicates ± standard deviation

Nearly 17 percent of the mothers were found to be underweight. Maternal malnutrition was commonly seen in the age groups of less than 20 and between 30-34 years (Table 4).

Table 4
Distribution of mothers according to their age and weight

n=563

Age group in years	*Maternal weight*				*Total*	
	< 40 kg (%)		*> 40 kg (%)*			
15 - 19	11	(25.5)	32	(74.5)	43	
20 - 24	37	(18.1)	167	(81.9)	226	
25 - 29	33	(13.1)	219	(86.9)	252	
30 - 34	12	(24.0)	38	(76.0)	50	
35 +	1	(7.1)	13	(92.9)	14	
Total	94	(16.6)	469	(83.4)	563	(100.0)

Nearly 28 percent of the mothers were found to be anaemic. A greater proportion were either para 3 or para 4 and above (Table 5). Further these mothers experienced pregnancies in quick succession often with birth interval less than 2 years and have become vulnerable to anaemia.

Table 5
Distribution of mothers according to their haemoglobin level and gravida

n=522

Gravidae	*Haemoglobin level*		*Total*
	< 8 g%	*≥ 8 g%*	
1	30 (17.7)	139 (82.3)	169
2	39 (25.5)	114 (74.5)	153
3	42 (35.8)	75 (64.2)	117
4	22 (44.0)	28 (56.0)	50
5	11 (33.3)	22 (66.7)	33
Total	144 (27.5)	378 (72.5)	522

$X^2 = 20.64$, df = 4, P<0.001
Figures in parentheses indicate percentage

In the present study 20 percent of the mothers did not have any risk factor while 33.8 percent had at least one risk factor and 20 percent had 3 or more risk factors (Table 6).

Table 6
Distribution of mothers according to their age and number of risk factors

n=613

Age group in years	*Total No.*	*Number of risk factors*			
		0	*1*	*2*	*3+*
15 - 19	43 (100)	0	16 (37.2)	7 (16.2)	20 (46.6)
20 - 24	226 (100)	17 (7.5)	88 (38.9)	69 (30.5)	52 (23.1)
25 - 29	270 (100)	86 (31.8)	85 (31.5)	62 (22.9)	37 (13.8)
30 - 34	57 (100)	16 (28.2)	17 (29.8)	12 (21.0)	12 (21.0)
35 +	17 (100)	3 (17.7)	1 (5.8)	4 (23.6)	9 (52.9)
Total	613 (100)	122 (19.9)	207 (33.8)	154 (25.2)	130 (21.1)

Figures in parentheses indicate percentage

Previous bad obstetric history, pregnancy related diseases and Rh negative blood group was observed in 9.2, 3.9 and 2.7 percent of mothers respectively (Table 7).

DISCUSSION

Education, socio-economic status, nutrition and cultural factors have a profound influence on the prevalence of risk factors among the pregnant mothers. Teenage mothers accounted for 7 percent of the total (Table 3) and were predominantly seen among Muslims. Ramachandran P. and Poredi RL reported 27.9 and 9.8 percent of teenage mothers respectively in their series with the same criteria.[3,6] In the present study, lower proportion of teenage mothers is due to delayed age at marriage among females in this region which in turn is due to high female literacy. Nearly 35 percent of the mothers were primigravidae. Fifteen percent of the mothers were teenaged and 6 percent were elderly primigravida mothers which was similar to the findings of Poredi RL[6].

Table 7
Other risk factors

n=613

	Risk factors	*No.*	*Percentage*
1. Previous bad obstetric history	Abortion	28	4.6
	LSCS	18	2.9
	PPH	3	0.4
	Perinatal and neonatal deaths	8	1.3
	Total	57	9.2
2. Pregnancy related diseases	PIH	18	2.9
	APH	6	0.9
	Total	24	3.9
3. Rh negative blood group		17	2.7

It is self evident that the younger the woman, when she has the first child, the more likely she is to be a youthful multipara.[3] In this study gravida 3 mothers accounted for 13.9 percent of the teenage group. One of the important features observed in this group was that multiparity was seen predominantly among Muslims. Eighty percent of the mothers were in the age group of 20-29 years and 13.2 percent of the mothers were in gravida 4 and above reflecting the family planning attitude of the couples towards the acceptance of the small family norm (Table 2).

Table 3 reveals that elderly primigravida mothers registered earlier for antenatal care. However, there is no statistical difference between antenatal registration in all gravidae ($P > 0.05$). Elderly primigravida mothers were probably aware of the possible complications associated with advanced maternal age.

Although good MCH services were available and accessible, utilisation of antenatal care services especially by gravida 3 and above mothers were found to be less. This behaviour could be due to their past experience and confidence gained during previous pregnancies.

Almost 17 percent of the mothers were underweight (less than 40 Kg). One fourth of the teenage mothers and mothers in the age group of 30-34 years were underweight as seen in Table 4. Ramachandran P recorded 38.7 percent were underweight.[3] However, Shenoy YP in the same area has found a similar observation (15 percent).[7]

Anaemia is widely prevalent among pregnant women in India. It is frequently seen among multigravida, teenage and older age groups.[5] In the present study 27 percent of the pregnant mothers were anaemic (Hb less than 8 g%) (Table 5). However, Ramachandran P, Poredi RL and Karim SA et al reported prevalence rate of 32.4, 49.4 and 17 percent respectively in their study.[3,6,8] In this study majority of the anaemic mothers were gravida 3 and above. Further as the gravida status of pregnant mothers increases the haemoglobin level has shown a decline. This was found to be statistically significant ($p < 0.001$). Most of the married women conceived within first 2 years of their married life. Sixty percent of the mothers had conceived within 2 years of their last child birth. The prevalence of anaemia among pregnant mothers in the present study could partly be due to shorter birth intervals of less than 2 years.

Table 6 shows the number of risk factors among pregnant women in different age groups. Risk factors were more frequently seen among teenage mothers as compared to any other group. Over 20 percent of the pregnant mothers had 3 or more risk factors. Forty six percent of teenage mothers had 3 or more risk factors.

Table 7 shows that previous history of abortion alone accounted for 4.6 percent whereas lower segment caesarean section (LSCS), perinatal and neonatal deaths accounted for 2.9 and 1.3 percent of risk factors respectively. Pregnancy induced hypertension (PIH) in the present study accounted for 2.9 percent and Rh negative blood group accounted for 2.7 percent respectively.

CONCLUSION

The present study has been restricted to a few risk factors. However, more comprehensive studies are warranted to find the magnitude of the high risk mothers incorporating many more variables.

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