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# **Research Article**

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# Determinants of utilization of maternity benefit schemes among mothers in urban slums of Davangere city, Karnataka, India

Navinkumar Angadi\*, Shubha Davalgi, Raghavendra S. K.

Department of Community Medicine, J. J. M. Medical College, Davangere 577004, Karnataka, India

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# \*Correspondence:

Dr. Navinkumar Angadi,

E-mail: navinkumarangadi7@gmail.com

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### **ABSTRACT**

**Background:** Maternal healthcare still a major challenge to the global public health system, especially in developing countries. Globally, every day about 830 women die from preventable causes related to pregnancy and childbirth. Many maternity benefit schemes were implemented to improve financial and geographic access to quality care for poor mothers. The objectives of the study were to 1. Utilization of maternity benefit schemes among mothers in urban slums of davangere city. 2. Determinants of utilization of these maternity benefit schemes among mothers in urban slums. Study design was community based cross-sectional study.

**Methods:** This study was conducted among all the mothers who had delivered prior to one year from the start of the study in urban slums.

**Results:** 57% of the mothers had utilized Janani Suraksha Yojana, 29% of mothers had utilized Prasuthi Araike Yojana, 65% of mothers had utilized Madilu Yojana and none of mothers had utilized Thayi Bhagya schemes. The major source of information was health care workers. Major reason for non-utilization of maternity benefit schemes was lack of awareness.

**Conclusions:** Overall the utilization of various maternity benefit schemes is poor among beneficiaries. Mothers and their husband's literacy status, occupation of mother, type of family, socioeconomic status are the important factors that affect utilization of various schemes.

Keywords: Maternity benefit schemes, Urban slums, Utilization

# INTRODUCTION

Maternal healthcare still a major challenge to the global public health system, especially in developing countries. Globally every day about 830 women die from preventable causes related to pregnancy and childbirth and 99% of these women are from developing countries. Half of these deaths occur in sub-Saharan Africa and almost one third report from south Asia. <sup>2</sup>

Under the Millennium Development Goal (MDG) 5, the target was to reduce Maternal Mortality Ratio (MMR) by three quarters between 1990 & 2015. Based on the UN Inter–Agency Expert Group's publication the target for MMR was 140 per 1,00,000 live births by the year 2015.

As per Sample Registration System 2011-13, MMR in India has shown a decline from 398 per 100,000 live births (1997-98) to 167 per 100,000 live births (20014-15).<sup>3</sup> Institutional deliveries in India have increased from 38.7% (National Family Health Survey-3, 2005-06) to 46.9% (District level health survey, 2007-08). As per the coverage evaluation survey (CES 2009) conducted by the UNICEF institutional deliveries rate was 72.9%.<sup>4</sup>

Efforts to address the issue of high maternal and infant mortality rate through promotion of institutional deliveries gained momentum with the formulation of National Rural Health Mission (NRHM). Many schemes under NRHM were implemented to improve financial and geographic access to quality care for poor mothers

and state governments also introduced various schemes. At present schemes active in Karnataka are Janani Suraksha Yojana (JSY), Madilu Yojana, Prasuthi Araike Yojana, Thai Bhagya Scheme, Janani Shishu Suraksha Karyakram, Bhagya Lakshmi Yojana, Anganwadi Nutrition Supplementation and 108 Ambulance. These schemes are available for both rural and urban population. Research shows that low proportion of target population receives benefit of such schemes. <sup>5,6</sup> However, the success of these schemes depends on their utilization by antenatal and postnatal mothers.

Previous studies that have looked at utilization of maternity benefit schemes have mainly focussed on JSY.<sup>7,8</sup> The present study was undertaken to assess the utilization and their determinants for various maternity benefit schemes among urban slum population of Davangere city.

### **Objectives**

- 1. Utilization of maternity benefit schemes among mothers in urban slums of davangere city.
- 2. Determinants of utilization of these maternity benefit schemes among mothers in urban slums.

### **METHODS**

It is a community based cross-sectional study conducted from1<sup>st</sup> September to 31<sup>st</sup> November 2015. There are 12 slums under the Urban Health training Centre located in the field practice area of JJM Medical College among them three slums were selected by using simple random sampling. All the mothers who had delivered prior to one year from the start of the study in these slums were recruited for the study. The mothers were identified by door to door enumeration. ANM registers and Anganwadi records were used to identify those mothers who were missed during enumeration. Fifty mothers from each slum were selected using systematic random sampling making a total sample size of 150.

# Inclusion criteria

- Postnatal mothers who were residing in the urban slums.
- 2. Mothers who had delivered prior to one year from start of the study.
- 3. Mothers who are eligible for maternity benefit schemes as per government criteria.

### Exclusion criteria

- 1. Mothers not willing to participate and not available at the time of study.
- 2. Women who had a still birth or abortion

Data collection from these 150 mothers was started after getting institutional ethical review board clearance. Slums were visited with pre intimation and mothers were

interviewed using pre-designed, pre-tested, semistructured questionnaire after obtaining informed verbal consent. The questionnaire included information regarding their basic socio-demographic data and factors influencing utilization of maternity benefit schemes.

Data was analysed using SPSS v 17.0 and presented in the form of descriptive statistics (means, proportions, percentages). Chi square test and logistic regression analysis were employed. The strength of association was estimated by calculating the odds ratios (OR) with 95% confidence intervals (CI). P value of <0.05 was considered statistically significant.

## **RESULTS**

### Socio-demographic characteristics of study participants

In the present study most of the mothers (53%) were in the age group of 20-24 years followed by 25-29 years (41%). Mean age of mothers was 21.6 years ( $\pm$  3.1 years). In our study 39% of mothers had education up to high school, 36% up to primary education and 19% were illiterate. Whereas 33% of their husbands had education up to primary and 32% had up to high school and 23% were illiterate. Majority (47%) of the husbands were involved in semi-professional type of occupation and 28% were involved in skilled occupation. In the present study majority of the mothers, (77%) were housewives. In the present study 68 (45%) of the study population belonged to joint family and 48 (32%) to nuclear family. In our study majority, 109 (73%) of the study population were Hindus. In present study majority (38%) of the families belonged to class IV and 29% belonged to class III according to modified B G Prasad socio-economic classification (Table 1).

Health care workers were the major source of information for mothers (67%) in our study area. Family and media were the source of information for 17% and 9% the mothers respectively (Figure 1).

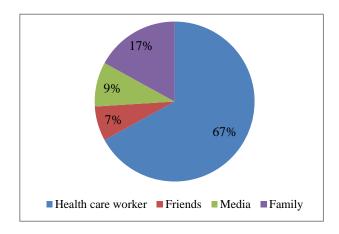


Figure 2: Source of information regarding maternity benefit schemes.

Table 1: Socio-demographic characteristics of study participants.

Variable	Number	Percentage			
Age					
≤19	2	1			
20-24	79	53			
25-29	62	41			
30-34	5	4			
≥35	2	1			
Mother's education					
Illiterate	29	19			
Primary	53	36			
High school	59	39			
PUC/Diploma	9	6			
Mother's occupation					
Home maker	115	77			
Unskilled	10	7			
Skilled	10	7			
Semi-professional	15	9			
Husband's education					
Illiterate	34	23			
Primary	49	33			
High school	46	32			
PUC/Diploma	15	9			
Degree	6	3			
Husband's occupation	n				
Unskilled	33	22			
Semiskilled	6	3			
Skilled	42	28			
Semi-professional	69	47			
Type of family					
Nuclear	48	32			
Joint	68	45			
Three generation	34	23			
Religion					
Hindu	109	73			
Muslim	39	26			
Others	2	1			
Socio-economic status					
Ι	3	2			
II	14	9			
III	43	29			
IV	57	38			
V	33	22			

### Utilization of maternity benefit schemes

In our study majority of the mothers (68%) had utilized Anganwadi Nutrition Supplementation and Madilu Yojana followed by JSY and Bhagya Lakshmi Scheme (57%), Prasuthi Araike Yojana (29%), JSSK (22%) and none had utilized Thayi Bhagya Scheme (Table 2).

In our study majority 85 (57%) mothers had utilised Janani Suraksha Yojana, 44 (29%) mothers had utilized Prasuthi Araike Yojana, 98 (65%) mothers had utilized Madilu Yojana, 102 (68%) mothers had utilized Anganwadi Nutrition Supplementation, 85 (57%)

mothers had utilized Bhagya Lakshmi Yojana, 84 (56%) mothers had utilized 108 ambulance and 33 (22%) mothers had utilized Janani Shishu Suraksha Karyakram. In our study none of mothers had utilized Thayi Bhagya Scheme (Table 2).

Table 2: Utilization of maternity benefit schemes.

Maternity benefit schemes	Number of beneficiaries	percentage
Janani Suraksha Yojana	85	57
Prasuthi Araike Yojana	44	29
Madilu Yojana	98	65
Anganwadi Nutrition Supplementation	102	68
Bhagya Lakshmi Yojana	85	57
108 Ambulance	84	56
Thayi bhagya	0	0
Janani Shishu Suraksha Karyakram	33	22

In present study major reason for non-utilization of maternity benefit schemes was lack of awareness (80%) (Table 3).

Table 3: Reasons for non-utilization of maternity benefit schemes.

Reason	Number	Percentage
Lack of awareness	120	80
Had to visit several times	23	15
Procedure is complicated	33	22

(Multiple options answered)

# Determinants of utilization of maternity benefit schemes among study participants

In our study utilization of maternity benefit schemes was more among mothers who were literate, housewives, whose husband was literate, belonging to Above Poverty Line (APL) families and joint/three generation family and the association was found to be statistically significant (Table 4).

# Multiple logistic regression analysis of utilization of JSY

Compared with the mothers who were illiterate, those who were literate had better odds of utilizing JSY. Likewise compared to mothers whose husbands were illiterate, mothers whose husbands were literate had more odds of utilising JSY. Similarly compared to nuclear families, odds of utilization of JSY was better among joint/3 generation families. On logistic regression analysis, utilization of JSY was significantly associated with husband's education and type of family (Table 5).

Table 4: Determinants of utilization of maternity benefit schemes among study participants.

Variable	Janani suraksh a yojana N (%)	Prasuthi araike yojana N (%)	Madilu yojana N (%)	Anganwadi nutrition supplementation N (%)	Bhagya lakshmi yojana scheme N (%)	108 Ambul -ance N (%)	Janani shishu suraksha karyakram N (%)
Age group							
≤19	0(0)	0(0)	0(0)	1(1)	1(1)	0(0)	0(0)
20-24	45(30)	23(15)	54(36)	55(36)	45(30)	36(24)	21(14)
25-29	38(25)	21(14)	42(28)	41(27)	33(22)	23(15)	12(8)
30-34	2(1)	0(0)	2(1)	3(2)	5(3)	3(2)	0(0)
≥35	0(0)	0(0)	98(65)	102(68)	1(1)	2(1)	0(0)
Mother's education							
Illiterate	15(10)	9(6)	14(9)	21(14)	19(13)	10(7)	6(4%)
Primary	22(15)	17(11)	34(23)	39(26)	30()	23(15)	17(11)
High school	41(27)	16(11)	43(29)	37(25)	30(20)	26(17)	10(7)
PUC/Diploma	7(5)	2(1)	7(5)	5(3)	6(4%)	5(3)	0(0)
Mother's occupation							
Home maker	60(40)	28(19)	68(45)	71(47)	59(39)	56(37)	25(22)
Unskilled	7(5)	4(3)	7(5)	10(7)	8(9)	0(0)	3(2)
Skilled	8(5)	6(4)	10(7)	9(6)	9(6)	2(1)	1(1)
Semi-professional	10(7)	6(4)	13(9)	12(8)	9(6)	6(4)	4(3)
Husband's education							
Illiterate	26(17)	15(10)	25(17)	26(17)	23(15)	15(10)	9(6)
Primary	25(17)	10(7)	36(24)	33(22)	26(17)	16(11)	5(3)
High school	26(17)	14(9)	24(16)	28(18)	24(16)	18(12)	13(9)
PUC/Diploma	1(1)	4(3)	8(5)	10(7)	9(6)	13(9)	3(2)
Degree	0(0)	0(0)	3(2)	3(2)	2(1)	0(0)	1(1)
Husband's occupation	n						
Unskilled	17(11)	8(5)	21(14)	22(15)	20(13)	10(7)	8(5)
Semiskilled	4(3)	1(1)	4(3)	6(4)	4(3)	0(0)	1(1)
Skilled	21(14)	9(6)	24(16)	25(17)	27(18)	28(19)	9(6)
Semi-professional	43(29)	26(17)	49(33)	49(33)	34(23)	26(17)	15(10)
Type of family							
Nuclear	20(13)	8(5)	26(17)	32(21)	26(17)	25(17)	11(7)
Joint	42(28)	31(21)	52(35)	54(36)	44(29)	21(14)	14(9)
Three generation	23(15)	5(3)	20(13)	16(11)	15(10)	18(12)	8(5)
Socio-economic status	S						
I	3(2)	0(0)	3(2)	1(1)	1(1)	3(2)	0(0)
II	6(4)	8(5)	11(7)	11(7)	7(5)	7(5)	5(3)
III	31(21)	18(12)	26(17)	34(23)	28(19)	11(7)	12(8)
IV	28(19)	15(10)	33(22)	40(27)	33(22)	24(16)	13(9)
V	17(11)	3(2)	25(17)	16(11)	16(11)	19(13)	3(2)

# Multiple logistic regression analysis of utilization of Prasuthi Araike Yojana

Compared to nuclear families, odds of utilization of Prasuthi Araike Yojana was better among joint/3 Generation families. Likewise compared to Below Poverty line Families (BPL), odds of utilization of Prasuthi Araike Yojana was better among Above Poverty line Families (APL). On logistic regression analysis, utilization of Prasuthi Araike Yojana was significantly

associated with type of family and socioeconomic status (Table 6).

# Multiple logistic regression analysis of utilization of Madilu Yojana

Compared to working mothers, odds of utilization of Madilu Yojana was better among housewives. Likewise compared to nuclear families, odds of utilization of Madilu Yojana was better among joint/3G families. On logistic regression analysis, utilization of Madilu Yojana

was significantly associated with mother's occupation and type of family (Table 7).

Table 5: Multiple logistic regression analysis of utilization of JSY.

Variable	Odds ratio	Confide interva	P	
v ai iabic		Upper limit	Lower limit	value
Mothers education literate illiterate <sup>≠</sup>	0.73	0.33	1.62	0.438
Husbands education literate illiterate <sup>≠</sup>	3.13	1.31	7.50	0.01
Type of family joint /3 generation nuclear <sup>≠</sup>	0.40	0.20	0.82	0.01

<sup>#</sup> Reference group

Table 6: Multiple logistic regression analysis of utilization of Prasuthi Araike Yojana.

Variable	Odds ratio	Confide interval	P	
Variable		Upper limit	Lower limit	value
Type of family joint /3 generation nuclear <sup>≠</sup>	0.36	0.15	0.86	0.02
Socioeconomic status APL BPL <sup>‡</sup>	0.32	0.15	0.67	0.02

<sup>#</sup> Reference group

Table 7: Multiple logistic regression analysis of utilization of Madilu Yojana.

Variable	Odds ratio	Confidence interval Upper Lower limit limit		P value
Mothers occupation not working working <sup>≠</sup>	4.14	1.5	11.46	0.006
Type of family joint /3 generation nuclear <sup>±</sup>	0.52	0.25	1.06	0.07

<sup>#</sup> Reference group

# Multiple logistic regression analysis of utilization of Anganwadi Nutrition Supplementation

Compared to working mothers, odds of utilization of Anganwadi Nutrition Supplementation was better among housewives. Likewise compared to nuclear families, odds of utilization of Madilu Yojana was better among joint/3G families. Similarly compare to Below Poverty line Families (BPL), odds of utilization of Anganwadi Nutrition Supplementation was better among Above Poverty line Families (APL). On logistic regression analysis, utilization of Anganwadi Nutrition Supplementation was significantly associated with mother's occupation, type of family and socioeconomic status (Table 8).

Table 8: Multiple logistic regression analysis of utilization of Anganwadi Nutrition Supplementation.

Variable	Odds	Confidence interval		P
variable	ratio	Upper limit	Lower limit	value
Mothers occupation not working working <sup>≠</sup>	4.80	1.58	14.53	0.005
Type of family joint /3 generation nuclear <sup>≠</sup>	0.91	0.43	1.90	0.81
Socioeconomic status APL BPL <sup>‡</sup>	0.50	0.24	1.04	0.06

<sup>#</sup> Reference group

Table 9: Multiple logistic regression analysis of utilization of 108 ambulance.

Variable	Odds	Confidence interval		P
variable	ratio	Upper limit	Lower limit	value
Mothers occupation Not working working <sup>±</sup>	0.31	0.13	0.74	0.008
Husbands education Literate illiterate <sup>≠</sup>	1.07	0.49	2.33	0.84
Type of family joint /3G nuclear <sup>≠</sup>	1.75	0.87	3.5	0.01
Socioeconomic status APL BPL <sup>‡</sup>	0.58	0.30	1.15	0.12

<sup>#</sup> Reference group

# Multiple logistic regression analysis of utilization of 108 Ambulance

Compared to working mothers, odds of utilization of 108 Ambulance was better among housewives. Likewise compared to nuclear families, odds of utilization of 108

Ambulance was better among joint/3G families. Similarly compare to Below Poverty line Families (BPL), odds of utilization of 108 Ambulance was better among Above Poverty line Families (APL). Similarly compared to mothers whose husbands were illiterate, mothers whose husbands were literate had more odds of utilising 108 Ambulance. On logistic regression analysis, utilization of 108 Ambulance was significantly associated with mother's occupation (Table 9).

### **DISCUSSION**

In our study 57% of mothers had utilized Janani Suraksha Yojana and almost similar findings were observed by Vikas Kumar, et al (53.4%). Our study result is higher than study conducted by Harpreet Kaur, et al (48.2%), Vikram K, et al (27.3%), and lower than study by Raut M M, et al (80.3%). 8-10

In present study 68% of mothers had utilized Anganwadi Nutrition Supplementation which is lower than study by Jawahar Preethy, et al (74.1%). In present study 57% of mothers had utilized Bhagyalakshmi Yojana and almost similar findings were observed by Minu Joseph, et al (54.2%). In present study 56% of mothers had utilized 108 ambulance which is higher than study by Hitesh Bhabhor, et al (39%). In our study 22% of mothers utilized Janani Shishu Suraksha Karyakram and almost similar findings were observed by R. C. Goyal, et al (20%). But our study result is lower than study by Uvi Tyagi, et al (60%).

In present study major reason for non-utilization of schemes is lack of awareness and similar finding was observed by Sahu D, et al. 16

### CONCLUSION

Overall the utilization of various maternity benefit schemes is poor among beneficiaries. The major source of information regarding these schemes are health care workers, despite of this major reason for non -utilization of schemes is lack of awareness. Mother's and their husband's literacy status, occupation of mother, type of family, socioeconomic status are the important factors that affect utilization of various schemes.

### Recommendations

- There is need to create awareness and counsel the mothers, family members and community as a whole for better utilization of various maternity benefit schemes.
- The procedure of schemes needs to be simplified for maximum utilization of schemes.
- For complete utilization of maternity benefit schemes it is important to pay attention to different socioeconomic factors.

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