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Original Research Article

Study of knowledge attitude practices and utilisation of existing health services by families with regard to newborn health at block level in rural India: a community based, cross sectional, observational study

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ABSTRACT

Background: The present study was undertaken to identify KAP gaps and the objective of the study were to assessment of utilization of existing health service infrastructure at grass route level in rural community with regard to mother and neonatal care.
Methods: A community based cross-sectional observational study. About 50 mother neonate pair residing in villages under study belonging to Dewas district, Madhya Pradesh.
Results: Age old customs and practices of large family (80%), adolescent marriages (30%), high fertility (50%), poor housing and sanitation (48% or more) are still widely prevalent in rural India. Positive impact of NRHM with launch of JSSY and NSSK was seen in utilization of ANC services among beneficiaries with 100% ANC registrations, 98% institutional deliveries and 100% deliveries conducted by trained health professionals, prompt referral to SNCU. Birth weight was not known in 36% neonates and 18% had not received BCG vaccination. 22% were low birth weight and 22% neonate's required SNCU care. Government emergency transport facility in form of ambulance was either absent (36%) or not utilized (26%) by majority.
Conclusions: Lacunae were seen to be persisting regarding awareness and utilisation of few components of maternal and neonatal health care especially in government sector in spite of launch of third phase of NRHM. This was evidenced by, lack of awareness of Obstetric USG facility at civil hospital, non-utilisation of ambulance service for transport, not knowing neonates birth weight and no neonatal follow up care and failure to vaccinate the neonate even till 3rd or 4th week of life.

Keywords: Health services, Knowledge attitude practices, New born, Rural India, Utilisation

INTRODUCTION

Infant and under 5 childhood mortality rates in developing countries have declined significantly in past 2-3 decades. However, 2 critical indicators, maternal and neonatal mortality have hardly changed. Of the global burden of 4 million annual neonatal deaths, India contributes to more than 25%.[1,2] Moreover vast majority of maternal and neonatal death occur in conditions of socioeconomic deprivation in developing countries. Even though the standard of Health services has improved considerably in last few years with launch of national rural health mission (NRHM) and wide variety of health care schemes like Janani Shishu Surakhsha Yojna (JSSY), Navjaat Shishu Surakhsha Karyakram (NSSK), human development initiative (HDI), its output in form of

maternal and neonatal mortality reduction is still to be seen all over India.[3-6] One of the primary reasons for this is lack of adequate awareness about availability of health services in people especially in rural and backward areas. Illiteracy, poverty, poor status and care of women, as well as dysfunctional health systems adversely affect maternal and neonatal health in a developing country like India.[7-11] There are very few studies factually analyzing the behavior pattern of communities regarding use of health services. As neonate's health is invariably dependent on maternal health status in ANC and PNC period maternal health is central to neonate's healthy development.[12]

A wide variety of old customs, religious beliefs and misconceptions are prevalent especially in rural communities some of which may adversely affect maternal and neonatal health. Maternal conditions like under nutrition, anaemia, multiple pregnancies with inadequate birth spacing are leading cause of prematurity and low birth in neonates.[12] It is essential to eradicate these gaps in knowledge attitude practises (KAP) by health promotion and health education. The present study was undertaken to identify KAP gaps and do the objective assessment of utilization of existing health service infrastructure at grass route level in rural community with regard to mother and neonatal care.

The aims and objectives of these study were to: identification of gaps in community's knowledge attitude and practices with regard to maternal and neonatal health, assessment of utilization of available health facilities by community with regard to maternal and neonatal health.

METHODS

It was community based cross-sectional observational study. About 50 mother neonate pair residing in villages under study belonging to Dewas district, Madhya Pradesh, India was included. Data captured was done between 1st June 2012 to 31st May 2013.

Inclusion criteria

- Mother neonate pair residing in villages under rural blocks in Dewas district with neonatal birth during 1st June 2012 to 31st May 2013.

Exclusion criteria

- Mother not giving consent for interview in spite of counselling
- Mother residing in villages under Dewas district but utilised mother and child health services of institutions outside Dewas district.

The present study, cross-sectional in nature, was conducted among rural beneficiaries in Dewas district from June 2012 to May 2013. Dewas, a district in Madhya Pradesh (MP) central India, is having majority of the population living in rural area.

Dewas has an average literacy rate of 69%, higher than the national average of 59.5% male literacy is 77% and, female literacy is 61%. In Dewas, 7% of the population is under 5 years of age. Recently delivered women (RDW) with neonate i.e. a maternal-neonatal pair was taken as the study subject. An RDW was defined as a post-natal woman who had delivered a baby during the period from June 2012 to May 2013.

Simple random sampling was used for selecting villages. Once the villages were selected cluster sampling technique was used to select mother neonate pairs. The study was conducted after obtaining clearance from the institutional ethics committee. Written consent was obtained from beneficiaries before interviewing as per the consent form.

A pre-structured interview schedule with pretested detailed questionnaire was used to collect the data via formal and informal discussions, direct observations, crosschecks with health records. Among independent variables age, religion, caste, type of family, education, socio economic status (SES), parity, and ANC registration were considered. For calculating SES, updated Kuppuswamy scale (UKS) 2012 was used.

Stastical analysis

Data entry and analysis were done using SPSS software version 10.0. Frequency and percentage for categorical variables were calculated. Data was represented in form of tables, bar diagrams, pie charts where ever necessary. mean and range were calculated for quantitative data.

RESULTS

Majority of families belonged to Hindu religion (94%), remaining 6% from Muslim community. Predominant beneficiaries belonged to schedule caste and schedule tribes (52%) with OBC's and general comprising 24% each. Predominantly joint family system (76%) and 80% having more than 5 members was observed. Mean family members=6.74, range=2-15. As per updated Kuppuswami's scale (2012) the socioeconomic distribution was observed with majority in class III (52%). Basic sanitation and safe water supply were available in only 52% households (Table 1).

Majority of beneficiaries were young women in the age group of 18-25 years. (78%) with mean maternal age of 23.1 years. and range of 19-30 years. Marital age is an important determinant of maternal and neonatal health with present study showing alarmingly high prevalence of adolescent marriages (30%). Mean marital age was 18.02 years. with a range of 9-25 years. Female literacy profile showed only 18% women were illiterate but with 82% of mothers having not studied beyond middle school. One of the beneficiaries (2%) has completed graduation.

Table 1: Demographic pattern of families.

Bio-social characteristics	No. of families	Percentage
Religion		
Hindu	47	94
Muslim	3	6
Sikh	0	-
Christian	0	-
Others	0	-
Total	50	100
Caste		
General	12	24
SC/ST	26	52
OBC	12	24
Total	50	100
Type of family		
Joint	38	76
Nuclear	12	24
Total	50	100
No. of family members		
Less than 5	10	20
5-10	36	72
More than 10	4	8
Total	50	100
Socio-economic status (UKS class)		
Class I	0	-
Class II	15	30
Class III	26	52
Class IV	9	18
Class V	0	-
Total	50	100
Type of housing		
Pucca	18	36
Kuccha	32	64
Total	50	100
Overcrowding		
Present	26	52
Absent	24	48
Total	50	100
Sanitation and safe water supply		
Present	26	52
Absent	24	48
Total	50	100

About 50% mothers were primipara while 40% were multipara from present study group. However, 10% mothers were grand multipara (5 or more) with its associated risks. Inspite of promotion of two child norm by government of India and safe contraceptive practices fertility rate remains high in Dewas and Madhya Pradesh as a whole. Mean parity of 2.14 and range of 1-8 (Table 2).

About 100% ANC registrations were done with majority in government facilities (84%) followed by 8% each in private sector and both sectors combined.

Table 2: Maternal demographic characteristics.

Maternal characteristics	No. of families	Percentage
Maternal age (years)		
Less than 18	0	-
18-25	39	78
26-30	11	22
31-35	0	-
Total	50	100
Age at marriage (years)		
Less than 18	15	30
18-25	35	70
26-30	0	-
Total	50	100
Educational status		
Illiterate	9	18
Primary school (1-5th standard)	11	22
Middle school (6-9th standard)	21	42
High school	6	12
Intermediate	2	4
Graduate	1	2
Total	50	100
Parity		
Primipara	25	50
Multipara (2-4)	20	40
Grand multipara (5 or more)	5	10
Total	50	100

About 100% mothers received at least 3 antenatal care visits. However, WHO and NRHM recommended minimum 4 or more ANC visits were received in (92%) cases with 8% cases not able to fulfil these criteria. Mean number of ANC visits were 6.32 with range of 3-10. 100% mothers received adequate TT vaccination and iron folic acid (IFA) supplements.

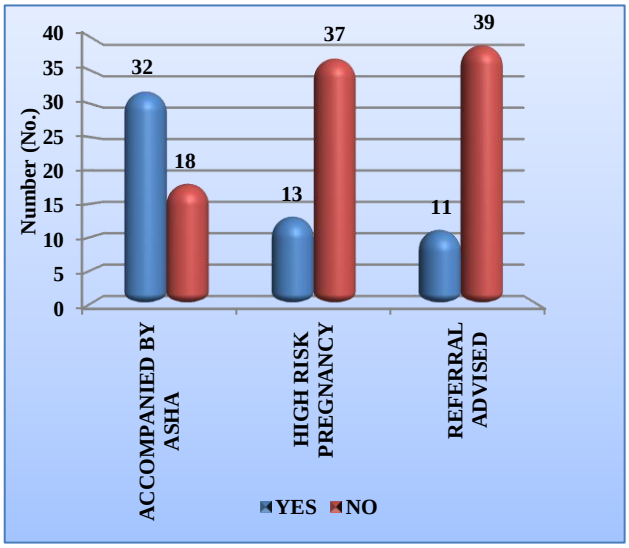

Figure 1: Bar diagram showing intrapartum care utilization.

Obstetric ultrasonography was done in 90% of beneficiaries with 10% not getting a single ANC USG check-up. Majority of USG were done in private hospitals (68%) in spite of civil hospital Dewas having obstetric USG facility. Only 12% knew about this facility and had it at Dewas civil hospital while 10% had multiple ANC USGs done at both facilities (Table 3 and Figure 1).

Table 3: Antenatal care utilization pattern.

ANC parameters	No. of beneficiaries	Percentage
Place of registration		
Government facility	42	84
Private hospital	4	8
Both	4	8
Total	50	100
No. of ANC Visits		
None	0	-
1-3	4	8
4 or more	46	92
Total	50	100
Adequate TT vaccination	50	100
If a supplement	50	100
Antenatal ultrasonography (USG)		
Done	45	90
Not done	5	10
Total	50	100
Source of antenatal USG		
Government facility	6	12
Private facility	34	68
Both	5	10
Not done	5	10
Total	50	100
High risk pregnancy		
Present	13	26
Absent	37	74
Total	50	100

Mean no. of ANC USGs 2.04 with a range of 0-5. Beneficiaries were knowledgeable about possible high-risk factors during pregnancy with 26% informing about their presence in current pregnancy. Remaining 74% pregnancies were without history of any high-risk factors. Inspite of 100% institutional delivery recommendations of WHO, 1(2%) mother delivered at home while remaining 98% were institutional deliveries. The said case was due to delayed referral during labour and non-availability of emergency ambulance service No delivery occurred at sub centre with majority occurring at civil hospital Dewas (76%). Remaining deliveries were conducted at PHC, CHC and private hospital 10%, 8%, and 4% respectively. About 100% deliveries conducted by trained health personnel as recommended and 90% done by staff nurse, 6% by ANM and 4% by doctor. As per Janani Shishu Shuraksha Yojna (JSSY) every pregnant mother must be accompanied by an ASHA and ambulance service should be available to and fro from home to health care facility. However, in 36% cases ASHA worker didn't accompany the mother and in 36% cases ambulance service was not available. 38% beneficiaries availed ambulance facility.

Table 4: Intrapartum care utilization pattern.

Health variable	No. of beneficiaries	Percentage
Place of delivery		
Home	1	2
Subcentre	0	-
PHC	5	10
CHC	4	8
Civil hospital Dewas	38	76
Private hospital	2	4
Total	50	100
Delivery conducted by		
Untrained dai	0	-
ANM	3	6
Staff nurse	45	90
Doctor/ medical officer	2	4
Total	50	100
Accompanied by Asha		
Yes	32	64
No	18	36
Referral advised		
Yes	11	22
No	39	78
Total	50	100
Availability of ambulance during referral		
Via ambulance	19	38
Ambulance available but via private vehicle	13	26
Via private vehicle as ambulance not available	18	36
Total	50	100

About 26% beneficiaries didn't avail of ambulance service in spite of availability and used personal or private vehicles to reach health centre. Referral was advised in 22% cases to higher centre (Table 4).

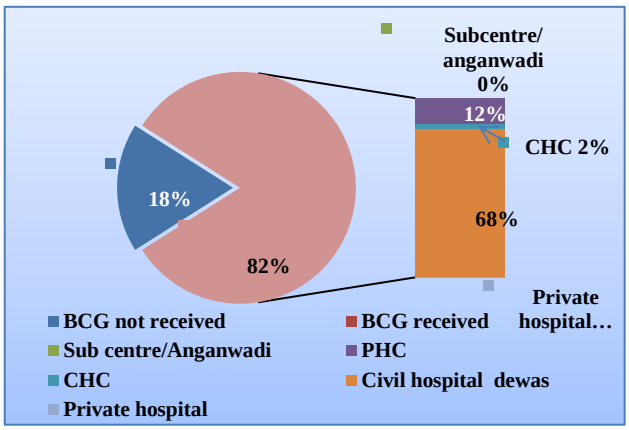

Figure 2: Bar of pie diagram showing immunization pattern of neonate.

Table 5: Neonatal health characteristics.

Neonatal health variable	No. of neonates	Percentage
Sex		
Male	33	66
Female	17	34
Total	50	100
Gestation		
Preterm	4	8
Term	45	90
Post term	1	2
Total	50	100
Birth weight		
Known	32	64
Not known	18	36
Total	50	100
Weight wise distribution		
Less than 2500g	11	22
2500-2999g	9	18
3000 -3499g	10	20
3500 -3999g	2	4
Not known	18	36
Total	50	100
Neonates requiring SNCU referral		
Yes	11	22
No	39	78
Total	50	100
Immunisation status		
BCG received	41	82
BCG not received	9	18
Total	50	100
Immunisation received at		
Subcentre/Anganwadi	0	-
PHC	6	12
CHC	1	2
Civil hospital Dewas	34	68
Private hospital	0	-
Not received	9	18
Total	50	100

About 66% of neonates were male with 34% females. Majority of neonates were term (90%), 8% as preterm and 2% post term. In spite of all but 1 neonate being delivered in health care institution birth weight was not known to mother in almost one third of cases (36%).

Almost one third (22%) neonates were low birth weight out of 64% whose weight was known. Range of birth weight 1500-3500g.

About 22% neonates required SNCU admission in early neonatal period. About 18% neonates had not received BCG vaccination in spite of being institutionally delivered (Figure 2).

Majority of immunization were done at civil hospital Dewas (68%) followed by 12% and 2% at PHC and CHC respectively. No neonate vaccinated at sub center or private clinic as per data in present study (Table 5).

Table 6: Awareness regarding availability of health services.

Health impact variable	No. of beneficiaries	Percentage
Nearest health facility		
Known	49	98
Not known	1	2
Total	50	100
Name of Asha worker		
Known	33	66
Not known	17	34
Total	50	100
Name of Anganwadi worker		
Known	23	46
Not known	27	54
Total	50	100
Availability of emergency ambulance service in village		
Yes	40	80
No	10	20
Total	50	100
Availability of private health services for general health issue		
Yes	29	58
No	21	42
Total	50	100
Health services as 1st level of contact for day to day illnesses		
Private practitioner	23	46
Subcentre/AWC	16	32
PHC/CHC	6	12
Civil hospital Dewas	5	10
Total	50	100
Knowledge of existing health service		
None	0	-
Incomplete	38	76
Complete	12	24
Total	50	100
Source of health care		
Government facility	22	44
Private facility	1	2
Both	27	54
Total	50	100

As per present study government emergency transport facility in form of ambulance was available in 80% beneficiary's villages. About 58% beneficiaries stated availability of private health care in their villages for day to day ailments (Table 6). However, majority of these are run by semi or unqualified practitioners.

Forty-six% families still dependent on these private health care as compared to 54% that utilized government health facilities as first level of contact for day to day

ailments. 32% visited sub centers or anganwadis, 12% PHC/CHC, 10% Civil hospital Dewas.

More than three fourth (76%) beneficiaries had incomplete knowledge regarding existing health services provide by government.

More than half (54%) beneficiaries utilized both government and private health services for maternal and neonatal health care. About 44% were dependent solely on government services while 2% only private services.

DISCUSSION

The present study was carried out to identify gaps in community's knowledge attitude and practises with regard to maternal and neonatal health and for assessment of utilization of available health facilities by community with regard to maternal and neonatal health. The present study was conducted among rural beneficiaries in Dewas district of Madhya Pradesh from June 2012 to May 2013. A total of 50 mother neonate pair belonging to 35 villages of 6 tehsils of Dewas district were selected. The data collected will differ according to how near or far a rural village is from the urban area, major health facility, accessibility via public transport and recall bias of interviewed in spite of utmost care taken to minimize these fallacies.[13]

Setting

Present study was done in rural blocks of Dewas district of MP. Majority of study population was concentrated around villages and tehsils near Dewas district town which may be a source of bias as seen in similar study by Pradhan et al, in Nepal.[13] Similar studies were done by Roy et al, Dilip et al, Joshi et al, in rural India.[14-16] Sharma et al, did a study in Aliganj an urban area of Lucknow.[17] Padiyath et al, based in a tertiary care hospital i.e. JIPMER, Puducherry.[18] Present study was done on only 50 mother neonate pair from rural area of Dewas due to logistical and financial reasons.

Demographic characteristics

Majority of beneficiaries were Hindu by religion and majority were of SC/ST similar to demographic profile of MP state and other Indian studies. Roy et al, UNFPA sponsored study showed similar results.[14,19] However in Joshi et al, majority were from other castes.[16]

Large family size (≥5) with predominantly joint family system was observed similar to data from other studies. Majority of beneficiaries were from socio-economic class 3 and 2 in spite of rural setting signifying poor maternal and child health is not solely seen in low socio-economic status families. The relationship between socio-economic determinants and IMR/NMR is not linear as shown by Bhakoo et al, Sharma et al].[17,20] Data from Roy et al, showed predominance of socio-economic status class 4 and 5.[14] In view of rural setting kuccha housing, overcrowding, poor sanitation, lack of accessibility to safe water supply was major hurdles in almost half the families.

Maternal characteristics

Majority of beneficiaries were young women in the age group of 18-25 years (78%) with mean maternal age of 23.1 years. Sharma et al, Chandhiok et al, observed women with advanced age having lower ANC visits and institutional delivery rates, a fact which was in contradiction with data from Roy et al.[14,17,21]

Mean age at marriage was 18.02 years. with wide spread prevalence of adolescent marriages in central and western India. Custom of childhood marriage was well established in many castes like "Kalotha Patels" inspite of government laws and social awareness campaigns. Per the latest DLHS-3 data, around 48% of currently married women in age group 20-24 years got married before age 18 in rural areas compared to 29% in urban areas.[22] The median age (16.8 years) at marriage for females is-well below the legal age of marriage-whilst that of the males is 22.6 years, higher than the legal age.

A special mention has to be made here of social custom of "Gauna" the ceremony associated with the consummation of marriage associated with the custom of child marriage.[23] The ceremony takes place several years after marriage. Before the ceremony the bride stays at her natal home. Marriage is considered only as a ritual union and conjugal life begins only after gauna; that is marriage is consummated only after the gauna ceremony.[23]

Illiteracy rate among beneficiaries was low with only 18% being illiterate. However, 82% mothers didn't study beyond middle school. Sharma et al, Padiyath et al had a higher distribution of illiterate beneficiaries.[17,18]

However Sharma et al, showed that lower education level didn't affect the utilisation of ANC services by beneficiaries due to efforts made by female health workers i.e. Anganwadi workers (AWWs), auxiliary nurse midwives (ANMs) and accredited social health activists (ASHAs) in the rural area who constantly motivate and provide health education to women.[17] About 50% of beneficiaries in present study were multiparous similar to JIPMER study.[18] In spite of family planning counselling by ASHAs and small family norm advocated by government 10% of beneficiaries in present study were grand multipara posing extreme risk to both maternal and neonatal health. Roy et al, Sharma et al, had higher proportion of multipara.[14,17]

Antenatal care (ANC) parameters

Antenatal care services are the first steps towards ensuring the health of mothers and the newborn. This is the key component for achieving millennium

development goals by 2015. But India's performance continues to be poor in providing antenatal care services to its huge population, particularly in the rural areas.[14] About 100% ANC registration done by all beneficiaries in present study group with almost all (92%) registered with government health care facility. 100% received at least 3 ANC visit while 92% achieved WHO and NRHM target of minimum 4 ANC visits similar to data from Srilatha et al, Roy et al, Sharma et al, have shown that early ANC registration is thought to pave way for longer period of contact between beneficiaries and health workers.[14,17,24] That explains higher tendency of early registered women to go for three or more number of ANC visits. A study from Syria also found the same.[25] 100% received all components of Ante natal care i.e. physical examination, lab tests, TT immunisation, IFA supplements in present study.[26, 27] Inadequate utilisation of ANC seen in study by Sharma et al.[17]

About 10% mothers didn't have antenatal ultrasonography (USG) and remaining 78% too had done it at private facility in spite of availability at government centres. However the utilization of ANC data from present study are a marked improvement when compared with data reported by Nisar et al, Pradhan et al, Kumar et al, Banerjee et al, Chandhiok et al, Agarwal et al and even NFHS-3 India.[13,21,28-32] One fourth of beneficiaries were having high risk pregnancy however no maternal complications were seen during post-natal period.

Intranatal care (INC) parameters

Inspite of 100% institutional delivery recommendations of WHO,1(2%) mother delivered at home while remaining 98% were institutional deliveries. The said case was due to delayed referral during labour and non-availability of emergency ambulance service. The delivery was conducted by ANM at home of beneficiary using universal delivery kit in aseptic manner. No delivery occurred at sub centre with majority occurring at civil hospital Dewas (76%). Each sub centre is equipped for conducting a safe delivery; however, it is for emergency situations only and routinely all deliveries are to be conducted at nearest PHC by ANM. Remaining deliveries were conducted at PHC, CHC and private hospital 10%, 8%, 4% respectively. This is in sharp contrast to findings of Dilip et al where home delivery rate was around 65% in pre NRHM era.[15] As per UNFPA study still institutional delivery rate is around 70% in MP with as low as only 50% in some parts of India even after launch of JSSK.[19] As per UNFP amajority of institutional deliveries were done at PHC followed by CHC level in contrast to data from present study.[19] About 100% deliveries conducted by trained health personnel as recommended.[33]

Neonatal health characteristics

Two third of the neonates in present study were male with 90% term and 42% having appropriate birth weight. 22% were low birth weight while as high as 36% neonates birth weight was unknown to mother. What was shocking that in spite of being institutional deliveries quite a few postnatal discharge cards didn't have birth weight or immunisation status documented. As per UNFPA study 33% of mothers in MP stayed only for one day or even less in the institution as against the norm of minimum stay of two days (48 hours).[19] This leads to inadequate maternal post-natal care, failure of initiation of immunization, establishment of exclusive breastfeeding, improper neonatal care increasing NMR/IMR.

Maternal awareness regarding significance of knowing birth weight, regular post-natal follow up care regards to vaccination, growth and developmental monitoring was inadequate in high proportion of cases. More than two thirds of BCG vaccinations were done at place of delivery i.e. civil hospital. Although all the mothers in the present study were of the opinion that vaccines are essential, majority of them did not know which all diseases can be prevented with vaccines. Various studies have proved that better knowledge about the vaccines would improve the vaccine coverage. Similar results observed in JIPMER study.[18]

Health impact variables

Awareness among the beneficiaries regarding name and location of nearest health facility (Anganwadi centre, sub centre, PHC, CHC, Civil hospital or private facility) along with contact details of health care personnel and emergency health services was assessed objectively. It was observed that almost every beneficiary knew about the location and type of nearest health facility (98%) except 1 (2%). However, majority of them had never visited it nor had contact details of emergency health care services. Awareness about grass root level health care workers namely AWWs, ASHAs, ANMs was lacking. As per UNFPA study in Madhya Pradesh, around 54 per cent of the women reported having travelled more than 10km.[19] to reach an institution for delivery. Strikingly, around 16 per cent of the respondent in Madhya Pradesh reported the use of motorcycle to reach the facility for delivery. In majority of the cases, the mode of transport was a hired one with the money not reimbursed in majority of cases. The state of Madhya Pradesh launched a scheme called the Janani express scheme where quotations were invited from private transport operators to make vehicles available on a 24x7 basis. However only 38% MOs at PHCs/CHCs reported that the Janani express scheme was implemented in their work area. However as per present study data majority of villages had availability of emergency ambulance service (80%) but beneficiaries utilized it in only 38% cases.

CONCLUSION

Study thus is fulfilling all the aims and objectives and it can be concluded from present study that, age old

customs and practices of large family (80%), adolescent marriages (30%), high fertility (50%), poor housing and sanitation (48% or more) are still widely prevalent in rural India. However, there is improvement in female literacy (82%). Positive impact of NRHM with launch of JSSY and NSSK was seen in utilisation of ANC services among beneficiaries with 100% ANC registrations, 98% institutional deliveries and 100% deliveries conducted by trained health professionals, prompt referral to SNCU. Birth weight was not known in 36% neonates and 18% had not received BCG vaccination. 22% were low birth weight and 22% neonate's required SNCU care. Government emergency transport facility in form of ambulance was either absent (36%) or not utilised (26%) by majority. 58% beneficiaries stated availability of private health care in their villages, however majority of these are unqualified or semi-qualified practitioners. 46% families were still dependent on such private health care as first level of contact for day to day ailments. More than three fourth (76%) beneficiaries had incomplete knowledge regarding existing health services provide by government. Lacunae were seen to be persisting regarding awareness and utilisation of few components of maternal and neonatal health care especially in government sector in spite of launch of third phase of NRHM.

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