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Demand side financing scheme for maternal and child health of Tamil Nadu: evaluation of benefit received status and awareness level among third trimester pregnant mothers, seeking care at Madurai Medical College Hospital, 2019

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ABSTRACT

Background: Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) of Tamil Nadu Government is demand side financing scheme to poor pregnant mothers to compensate wage loss and for nutritional support. Scheme was revised during 2018. Primary objectives were to estimate proportion of benefit received status and median awareness level among third trimester pregnant mothers regarding MRMBS scheme. Secondary objective was to determine association between above two.

Methods: We conducted cross sectional study among third trimester pregnant mothers who sought care at Madurai Medical College Hospital; adopted consecutive sampling; sample size 96. We collected data with semi structured questionnaire; calculated proportions with confidence intervals, median, interquartile range and performed bivariate analysis; observed privacy and confidentiality; obtained informed written consent from participants.

Results: Enrollment percentage was 97% (91 to 99%). Proportion of mothers who received any benefit, any installment and any nutrition kit were 82% (72 to 89%), 39% (29 to 49%) and 76% (66 to 85%) respectively. Proportion who received appropriate benefit, appropriate instalment(s) and two nutrition kits were 3% (0.7 to 9%), 22% (14 to 31%) and 3% (0.7 to 9%) respectively. Regarding awareness score, lowest, highest, median and interquartile range were 5, 23, 14 and 11 to 17 respectively. Odds ratio for awareness score above median (exposure) and any benefit received status (outcome) was 4.2 (1.2to19.2).

Conclusions: Enrollment was satisfactory. Overall any benefit received status had been achieved by at least one nutrition kit supply. Second instalment and kit issue needed improvement. Huge scope existed for improvement of awareness among beneficiaries.

Keywords: Awareness, Benefit received status, MRMBS

INTRODUCTION

Conditional cash transfer is one of the four types of demand side financing.¹ Dr. Muthulakshmi Reddy Maternity Benefit Scheme (MRMBS) is a conditional cash transfer for promotion of maternal and child health. It is one of the flagship schemes of Tamil Nadu

Government. It is implemented via Tamil Nadu Public Health Department. Main objective of the scheme is to provide financial assistance to poor pregnant mothers to compensate wage loss and for nutritional support in order to prevent low birth weight.² The scheme is under implementation at Tamil Nadu since 1987. It started with the cash benefit of Rs.300. At 1995, it was increased to

Rs. 500. It was raised to Rs. 2000, 6000 and 12000 subsequently during the years 2005, 2006 and 2011 respectively.^{3,4} Rs. 12000 was given to mothers in three instalments.^{4,5} Of late it has been increased to Rs. 18000 during the year 2018. It is being given as cash and kind benefits to all poor mothers who are below poverty line (BPL). Cash benefit is being given in five instalments as follows.

Table 1: Cash benefits given in instalments.

Instalment	Amount	Remarks				
First	Rs.2000	As soon as after antenatal registration (which must happen within 12 weeks)				
Second	Rs.2000	After four months of gestational period with conditions				
Third	Rs.4000	After delivery (in Government or government approved private institutions for benefit under the scheme) and a condition regarding family planning				
Fourth	Rs.4000	After third dose of OPV, Penta, and Rota vaccines and second dose of IPV vaccine to child				
Fifth	Rs.2000	After measles, rubella vaccination to child after 9 months of age and a condition regarding family planning				

First nutrition kit is given at 12 weeks and second one after four months. Both nutrition kits and first instalment cash are provided to all mothers with a view to enroll all mothers within health department care circle. Only mothers with first and second pregnancy are eligible for second, third and fourth instalments. Fifth instalment is given to all mothers provided that mother with two or more children or her husband have undergone sterilization.^{3,6}

A study conducted at Trichy district, Tamil Nadu during 2016 revealed that 87.5 percent of mothers had received at least one installment. But at that time, the scheme had Rs. 12000 as benefit which was given in three instalments with certain conditions. It was relatively easy for the mothers to know their eligibility. The scheme had raised the benefit to Rs.18000 during 2018 (Rs. 14000 in five instalments and Rs. 4000 as two nutritional kits). 3.6

After the new guidelines had been implemented, there had been no study evaluating the benefit received status, identified during literature review. For any scheme to be successful, it has to be implemented with community participation. Awareness level among the beneficiaries is one important measure to ensure community participation. Measuring the benefit received status and its relationship with awareness level could throw light regarding how the demand side (beneficiary) and supply

side (government machinery) coordinate with each other in achieving the best. The above mentioned coherence could help improve/sustain the implementation status. In this context it was imperative to know the benefit received status, awareness level and the relationship between the two to help suggest possible recommendations regarding course corrections needed if any at local level. In larger perspective, the study would help understand the practicalities (strength and weakness) of a demand side financing scheme towards maternal and child health.

As mothers in last trimester of pregnancy use to visit Government Rajaji Hospital (Madurai Medical College Hospital), themselves as well as by referral system, they had been chosen as study population in this study. A mother in her last trimester must have received one or two instalments of money (depending on her parity status) and two nutrition kits as per scheme guidelines. So their first and second instalments and nutrition kits received status had been considered as proxy for benefits/appropriate benefits received under the scheme.

Primary objectives

Primary objectives of the study were to estimate the proportion of third trimester mothers who have received any/appropriate benefits under the MRMBS scheme and to estimate the median awareness level regarding MRMBS scheme.

Secondary objectives

Secondary objectives were to determine the association between awareness level and any benefit received status among third trimester mothers.

METHODS

We did cross sectional survey. Present study population was third trimester pregnant mothers, who sought health care at Government Rajaji Hospital which is the Madurai Medical College Hospital. We excluded mothers less than 19 years of age, mothers in labor and seriously ill mothers from the study. We conducted the study during July last week and August first week of the year 2019.

We defined the variables as follows. Any benefit received status, any mother who had received any one benefit, i.e., at least one instalment of money or one nutrition kit. Any instalment received status, i.e., Any mother who had received at least one instalment of money. Any kit received status, i.e., any mother who had received at least one nutrition kit. Appropriate benefit received status, i.e., a primi or second gravida mother was considered to have appropriately received benefits if she had received two nutrition kits and first and second instalments under MRMBS scheme. For a third gravida mother, appropriate benefit received status was defined as receipt of two nutrition kits and first installment money. Appropriate

installment received status, i.e., a primi or second gravida mother was considered to have appropriately received instalment if she had received first and second instalments under MRMBS scheme. For a third gravida mother, appropriate instalment received status was defined as receipt of first instalment money. Two kits/appropriate kit received status, i.e., any mother was considered to have received appropriate kit/two kits if she had received two nutrition kits under MRMBS scheme. Median awareness level was defined as middle value of the scores obtained by mothers in the awareness section of questionnaire.

Consecutive sampling was done. The sample size was 96. Sample size was calculated in the Epi info 7.2.1.0 version software by using following assumptions: expected frequency of benefit received status- 50%, allowable error 10%, 95% confidence interval. Primary investigator collected data using semi structured questionnaire which had two sections: awareness section and benefit received section. Awareness section had 30 questions regarding the scheme; each question carried one mark for correct response and there were no negative marks. We obtained expert opinion and guidance from public health department officials on devising the awareness section questions. We did a pilot study with 20 participants. The mean awareness score was 13.8 and standard deviation was 4.2. By using the formula $n=4\times(std. deviation)^2$ / absolute precision, we calculated sample size for second primary objective. It was $71[4\times(4.2)^2]$. As it was less than that of first primary objective, we had 96 as the sample size and achieved it.

Epi info 7.2.1.0 version software was used for data analysis. Descriptive statistics in the form of proportion with confidence interval and median with interquartile range were used. We also used analytical statistics in the form of odds ratio with confidence interval. We adopted Mid-P confidence limits for odds ratio. In case of sparse data (less than 5 in a cell), we adopted Fisher exact confidence limits. We calculated proportion of the following with confidence intervals: any benefit received status, any instalment received status, any kit received status, appropriate benefit received status, appropriate instalment received status and appropriate (two kits) kit received status. We computed median and interquartile range for awareness score. We did bivariate analysis to determine the association between awareness level and any benefit received status.

We obtained permission from Institutional Ethics committee of Madurai Medical College. We took care of privacy and confidentiality concerns of study participants and obtained written informed consent from them.

RESULTS

Among 96 third trimester mothers who participated in the study, 55% of mothers were more than or equal to 25 years of age; 51% had education more than high school;

88% were home makers; 35% mothers' husbands had education more than high school; 53% of husbands were employed and self-employed and rest were skilled and unskilled laborers; 44% of mothers were primi gravida, 44% were second gravida and 12% were high order pregnancy mothers; 70% were from Madurai District (Table 1).

Table 1: Socio demographic characteristics of study participants (n=96) (third trimester mothers seeking care at Madurai Medical college Hospital).

characteristics	No.	%	95% CI (%)
Age more than or equal to median (25)	53	55	45 to 65
Education more than high school	49	51	41 to 61
Occupation housewife	84	88	79 to 93
Husband education more than high school	34	35	26 to 46
Husband occupation Employed and self employed	51	53	43 to 63
Skilled and unskilled labourers	41	47	36 to 57
Primi gravida	42	44	34 to 53
Second gravida	42	44	34 to 54
High order pregnancy	12	12	7 to 20
Madurai district	67	69.8	59.6 to 77.1
Other districts	29	30.2	21.7 to 39.9

Among total 96 mothers, enrollment percentage was 97% (91 to 99%). Among enrolled 93 mothers, proportion of mothers who had received any benefit, any instalment and any nutrition kit were 82% (72 to 89%), 39% (29 to 49%) and 76% (66 to 85%) respectively; Proportion who had received appropriate benefit, appropriate instalment(s) and two nutrition kits were 3% (0.7 to 9%), 22% (14 to 31%) and 3% (0.7 to 9%) respectively (Table 2).

Table 2: Percentage of enrollment and benefit received status under MRMBS among third trimester mothers, MMC Hospital, 2019.

Characteristic	No.	Total	%	95% CI (%)
Enrollment	93	96	96.9	91.1 to 99.4
Received any benefit	76	93	81.7	72.3 to 89.0
Received any instalment	36	93	38.7	28.8 to 49.4
Received any kit	71	93	76.3	66.4 to 84.5
Received appropriate benefit	3	93	3.2	0.7 to 9.1
Received appropriate instalments	20	93	21.5	13.7 to 31.2
Received appropriate kits	3	93	3.2	0.7 to 9.1

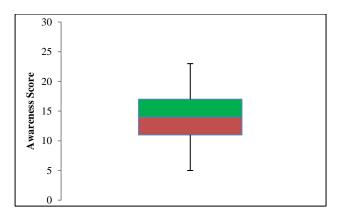


Figure 1: Awareness score regarding MRMBS scheme among third trimester pregnant mothers, MMC Hospital, 2019.

Regarding awareness score, total (maximum possible) score was 30; lowest score obtained was 5, highest 23, median 14 and interquartile range 11 to 17. In percentage, lowest score 17%, highest 77%, median 47%, interquartile range 37 to 57% (Figure 1).

Base line characteristics were similar between mothers who had received any benefit and who had not received any benefit except husband education. Mothers with husbands who had education more than high school were less likely to receive any benefit [OR 0.3 (0.1 to 0.8)] in comparison to mothers with husband education less than or equal to high school. Mothers with more than median (score 14) awareness score were more likely to receive any benefit in comparison to those with score less than or equal to median (Table 3).

Table 3: Association between Socio demographic characteristics and awareness score (exposures) and any benefit received status (outcome) among third trimester mothers, MMC Hospital, 2019.

Exposure characteristics	Percentage of exposures Among those who have received any benefit			Among those who have not received any benefit			Odds ratio	95% CI
	No.	Total	%	No.	Total	%		
Age (in years) ≥median (25)	43	76	56.6	9	17	52.9	1.2	0.4 to 3.3
Education: more than high school	40	76	52.6	9	17	52.9	1.0	0.3 to 2.8
Occupation: housewife	68	76	89.5	14	17	82.4	1.8	0.3 to 8.8
Husband education: more than high school	22	76	30.0	10	17	58.8	0.3	0.1 to 0.8
Husband occupation: employed and self employed	40	76	52.6	10	17	58.8	0.8	0.3 to 2.3
Awareness score: more than median (14)	43	76	56.6	4	17	23.5	4.2	1.2 to 19.2

DISCUSSION

More than half of mothers were above 25 years and had crossed high school education; Majority was home makers; Most of them were carrying their first or second baby. Enrollment of beneficiaries under the MRMBS scheme was near complete. More than three fourth of enrolled mothers had received at least one benefit mostly in the form of nutrition kit. Only less than one fourth of mothers had received instalments appropriate to their gestational period under the scheme. Very negligible proportion of mothers had received the appropriate benefits with respect to their gestational period. It was because of very low level of receipt of two nutrition kits. Half of mothers had awareness score less than fifty percent of maximum score. Awareness about the eligibilities/conditionality's and procedures under the scheme was positively associated with receipt of one or both benefits.

Balasubramanian et al had published an evaluation of MRMBS scheme during 2012, in which only 25% of eligible beneficiaries had received the benefits. Present study' results were encouraging that more than 75% had

received at least one benefit under the scheme. Supply of first nutrition kit had reached most of the mothers. Receipt of first and second instalment of money by pregnant mothers was comparable to the above mentioned study. Receipt of appropriate benefits i.e., appropriate instalments of money and two nutrition kits was very much unsatisfactory. Supply of second nutrition kit had been found to be a bottle neck in the course of appropriate benefits reaching the beneficiaries. As one of the main objectives of the scheme was to provide nutritional support to the poor pregnant mothers, receipt of one nutrition kit by mothers implied that half of the mile stone had been achieved by the scheme. Awareness among antenatal mothers regarding the scheme benefits and necessary conditions for getting them needed a boost; a study by Lakshmi et al also had highlighted that awareness level among antenatal mothers was lower.10 Knowing the conditionality's and benefits of the scheme could be a positive factor for receiving the benefits under the scheme. One of the scheme objectives is to provide nutritional support to the poor pregnant mother to facilitate her to produce a healthy baby; this requires receipt of both nutrition kits in stipulated time. Knowing that every enrolled mother is eligible to get two nutrition

kits could help enhance the demand from mother side which in turn could persuade the Government machinery to issue both the nutrition kits in time;

Awareness level whatever existed could have happened after receipt of benefits. Thus temporal association between Awareness score and benefit received status could be questioned. To examine that, we split the total score (30) as before birth benefits (benefits during pregnancy) score (13) which might be achieved by the study participants in consequence to receipt of benefits, after birth benefits related score pertaining to benefits after delivery (11) and score of general/common questions (6). We looked for correlation between before birth benefit score and after birth benefit score; it was having moderate correlation (0.5) which was statistically significant (p<0.0001). Above finding could suggest that the awareness could be a fore runner to receipt of benefits.

CONCLUSION

We concluded that enrollment of beneficiaries and receipt of at least one benefit especially first nutrition kit under the scheme was satisfactory. First and second instalment money issue needed attention from authorities. Much more attention was to be paid in order to ensure second kit supply to all eligible pregnant mothers so as to enable improvement of nutritional status of mothers. Awareness level among beneficiaries needed a boosting which could improve receipt of benefits under the scheme. Demand side financing scheme's success depends both on supply side sharpness in ensuring the benefits to beneficiaries and beneficiaries' involvement in expressing the demand. Demand as a result of awareness could motivate the supply side to concentrate in the scheme implementation still better as this scheme is one of the numerous commitments Tamil Nadu Public Health Department is exercising in order to improve the health and wellbeing of Tamil Nadu people.

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