Research article

A study to assess the knowledge of factors associated with maternal mortality and its prevention under the national rural health mission among health workers at selected primary health centres of Jaipur district

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Abstract

A study to assess the knowledge of health workers regarding maternal mortality and its prevention in selected primary health centres of Jaipur District. Method:-This study based on non-experimental descriptive design with the aims of reduceing maternal mortality. Objectives: - To assess the knowledge of factor associated with maternal mortality among health workers working under the National Rural Health Mission, to assess the knowledge of preventive measure of maternal mortality rate and to assess the association between knowledge of Health workers with selected demographic variables. A structured questionnaire tool was used to assess the knowledge of health workers regarding maternal mortality and its prevention. This study was conducted in March-April 2017 at selected primary health centres of Jaipur District. Result:-The result showed that existing knowledge of health workers was (50.5%) regarding MMR, the prevention score was (51.6%) and for factors affecting MMR the score was (46.6%). The mean score of overall knowledge about maternal mortality was 50.05% amongst the respondents. The results indicate that the (26.7percentage) of male health workers had inadequate knowledge and 53.3percentage of female health workers had moderate knowledge. The chi square value indicates that there was a significant association between sex and Knowledge level of respondents regarding maternal mortality conclusion:-The findings revealed that Health workers had only moderate knowledge regarding maternal mortality and its prevention. Therefore, more efforts should be taken by the health workers to improve awareness regarding maternal mortality and its prevention and need further study on maternal mortality.

Keywords: Assess, Knowledge, maternal mortality, maternal health, NRHM, Sex, Gender, Health worker

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1.Introduction

A high proportion of the population especially in rural areas continues to suffer and die from preventable diseases; pregnancy and child birth related complications as well as malnutrition. Recognizing the importance of health in the process of economic and social development and to improve the quality of life of citizens, the Government of India launched "National Rural health mission" on 5th April 2005 for a period of 7years (2005-2012).The mission seeks to improve rural health care delivery system. It is operational in the whole country with special focus on 18 states [1].

According to the latest report of the Registrar General of India's Sample Registration System (RGI-SRS; the sole source of data for fertility and mortality in India), the maternal mortality ratio (MMR) in India has registered a decline from 212 per 100,000 live births in the period 2007-09 to 178 in 2010-12. It has declined

further to 167 per 100,000 live births in the period 2011-13. This means an estimated 44,000 maternal deaths (death of a woman during pregnancy or within 42 days of termination of pregnancy) occur in the country every year.

Under MDG 5, the target is to reduce MMR by 75 per cent between 1990 and 2015. Based on the United Nations' Inter-Agency Expert Group's MMR estimates in the publication, trends in Maternal Mortality: 1990 to 2013, India's target for MMR is 140 per 100,000 live births by 2015, taking a baseline of 560 per 100,000 live births in1990 [2].

Union health minister J P Nada stated in Rajya Sabha that, if MMR declines at the same pace, India will reduce MMR to 140 per 100,000 live births by 2015. SRS data shows that so far only three states—Kerala with an MMR of 66 per 100,000 live births, Tamil Nadu with an MMR of 90 and Maharashtra with an MMR of 87—have been able to achieve the millennium development goal. Andhra Pradesh is close to achieving the target with an MMR of 110. Going by the trend, most other states will not be able to achieve the target. India, as whole, is lagging behind [2], [3].

"We need to adopt a holistic approach towards women care. A strong bias towards curative care reflects a culture that often neglects prevention and wellness. India needs to focus more on preventive capabilities and public health measures to meet post-2015 MDGs for maternal and child health outcomes, with a special emphasis on reducing the dual burden of CDs and NCDs," said Anjan Bose, Secretary General, NATHEALTH."The government has taken several steps to implement several women care projects like Janani Suraksha Yojana [4]. Hence, maternal mortality rates have improved considerably. However, high-quality care is hindered both by limited accreditation and by failure to adopt basic technologies. Here, by joining hands public and private sector can play vital role in improving women care," said Anjan Bose, Secretary General, and NATHEALTH [5].

It recommends that India needs to focus on universal insurance coverage for essential care with low out-of-pocket spending. The government also needs to pay attention on its role as a payer and regulator and drive provision of health care in under-served areas, across the care continuum. Facilitating public health through a focus on awareness, education, sanitation, immunisation and implementation of public health initiatives would go long way to make not only women in India healthy but create a Healthy India in real sense [6]. NATHEALTH feels that the pronouncement on transforming 1,50,000 health sub-centers into health and wellness centers for strengthening primary care in Budget 2017-18 clearly indicates that the government has accorded priority to mother and child care with a sense of urgency. The Budget also proclaims intent to reduce the maternal

mortality ratio from current level to 100 by 2018-20. Though the target appears realistic, however, the government needs to raise standards of care in sub-centers, primary health centers and community health centers and that would require more human and financial resources [7].

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 Under MDG 5, the target is to reduce MMR by 75 per cent between 1990 and 2015. Based on the United Nations' Inter-Agency Expert Group's MMR estimates in the publication, Trends in Maternal Mortality: 1990 to 2013, India's target for MMR is 140 per 100,000 live births by 2015, taking a baseline of 560 per 100,000 live births in 1990.

Union health minister J P Nada stated in Rajya Sabha on Tuesday that if MMR declines at the same pace, India will reduce MMR to 140 per 100,000 live births by 2015.

But the decline in MMR has remained stagnant since 2006 in India. Between 2006 and 2009, MMR declined by 16.5 per cent, while from 2009 to 2012, it declined by 16.03 per cent.SRS data shows that that so far only three states—Kerala with an MMR of 66 per 100,000 live births, Tamil Nadu with an MMR of 90 and Maharashtra with an MMR of 87—have been able to achieve the millennium development goal. Andhra Pradesh is close to achieving the target with an MMR of 110. Going by the trend, most other states will not be able to achieve the target. India, as whole, is also lagging behind [10].

Objectives of the Study:

1. To assess the knowledge of factor associated with maternal mortality among Health workers working under the National Rural Health Mission.
2. To assess the knowledge of preventive measure of maternal mortality rate

3. To assess the association between knowledge of Health workers with selected demographic variables.

Hypotheses:

$H_{01:}$ There will be good knowledge among the health workers about MMR working under NRHM

H_{02}: There will be no significant association between the knowledge and selected demographic variables of Health workers

Conceptual framework

The framework of this study is based on general system theory, which was discovered by Ludwigvon Bertalanffy during the late 1930's and consists of input, throughput and output model.

2. Methodology

The present non-experimental descriptive study was undertaken to assess the knowledge of health workers regarding maternal mortality rate and its prevention using a structured knowledge questionnaire.

The **validity** of the tool was done by giving 09 experts in various fields like nursing, medicine and statistics. The opinion obtain from the experts where implemented in the tool. Correction where made as per the suggestion given by the experts.

The **reliability** coefficient of internal consistency was computed by Karl Pearson coefficient correlation method. The reliability coefficient obtained for tool on knowledge was = 0.83, found to be internally consistent and reliable for the study.

3. Result

The respondents items was analysed and tabulated as below

Section 1: Overall and aspect wise knowledge scores of respondents

Table No 1: Items wise mean Knowledge scores of Respondents on maternal mortality

n=90

No.	Items	Max. score	Respondents knowledge		
			Mean	Mean (%)	SD (%)
I	Introduction	9	4.50	50.0	17.2
II	Knowledge	9	4.69	52.1	16.9
III	Prevention	5	2.58	51.6	25.4
Iv	Factors	7	3.26	46.5	23.0
	Combined	30	15.03	50.05	6.19

Table 1: Represents aspect wise mean knowledge score of respondents on maternal mortality. The results show

that existing knowledge of health workers was highest (52.1 %) in the aspect of knowledge and introduction on maternal mortality (46.5 %) in prevention score was (51.6%), in factors, the mean score was (46.6%),over all respondents knowledge about maternal mortality mean score 50.05 percents respective

Table No 2: Knowledge level of Respondents on maternal mortality

Knowledge level	Category	Respondents	
		Number	Percent
Inadequate	Below 50 % Score	40	44.4%
Moderate	51-75 % Score	50	55.6%
Adequate	Above 75 % Score	0	0.0%
Total		90	100.0%

Table 2: Represents knowledge level of respondents on maternal mortality showed that 55.6 % of health workers had moderate knowledge and 44.4% health workers had inadequate knowledge and none of them had adequate knowledge regarding maternal mortality and its prevention.

Section 2: Association between Knowledge level and Demographic Variables of Respondents

Table No 3: Association between age and knowledge level of respondents on maternal mortality

n=90

Age group (yrs)	Knowledge level of respondents						X^2 Value
	Inadequate		Moderate		Combined		
	N	%	N	%	N	%	
21-30	16	61.5	10	38.5	26	100.0	
31-40	23	46.9	26	53.1	49	100.0	11.87*
41-50	1	6.7	14	93.3	15	100.0	
Total	40	44.4	50	55.6	90	100.0	

* Significant at 5 % Level, X^2 (0.05, 2df) = 5.991

Table 3: Represents association between age and knowledge level of respondents regarding maternal mortality. The results indicate that the 61.5% of health workers (21-30yrs) had inadequate knowledge and 38.5 % of health workers had moderate knowledge. In age group of 31-40 years 46.9% of health workers had inadequate knowledge and 53.1% of health workers had moderate knowledge and in the age group of 41-50 years 6.7 % had inadequate knowledge and 93.3% of them had moderate knowledge.

The chi square value indicated that there was significant association between age and Knowledge level of respondents regarding maternal mortality

Table No 4: Association between Designation and Knowledge level of Respondents on maternal mortality rate

Designation	Knowledge level of respondents						X^2 Value
	Inadequate		Moderate		Combined		
	N	%	N	%	N	%	
Health worker female	15	50.0	15	50.0	30	100.0	
Health worker male	9	30.0	21	70.0	30	100.0	3.87 NS
Anganwadi worker	16	53.3	14	46.7	30	100.0	
Total	40	44.4	50	55.6	90	100.0	

NS: Non-Significant, X^2 (0.05, 2df) = 5.991

Table 4: Represents association between Designation and knowledge level of respondents on maternal mortality. The results indicated that the (50.0%) of health worker female had inadequate knowledge as against 30.0 percentage males and 53.3% of anganwadi workers had inadequate knowledge. The chi square value indicated that there was no significant association between their occupation and Knowledge level of respondents regarding maternal mortality

Table No 5: Associations between experience and Knowledge level of Respondents on maternal mortality
n=90

Working experience in NRHM programme	Knowledge level of respondents						X^2 Value
	Inadequate		Moderate		Combined		
	N	%	N	%	N	%	
No	16	39.0	25	61.0	41	100.0	
One year	13	59.1	9	40.9	22	100.0	
Two years	6	31.6	13	68.4	19	100.0	4.73 NS
Three years	5	62.5	3	37.5	8	100.0	
Total	40	44.4	50	55.6	90	100.0	

NS: Non-Significant, X^2 (0.05, 2df) = 5.991 (X^2=00.4.73 NS, P>0.05)

Table 5:- Depicts the association between experience and knowledge level of respondents on maternal mortality. The result indicated that 68.4 % of respondents had moderate knowledge who had two years experience in NRHM programme while 61% of respondents have no experience had moderate knowledge, 40.9 % of respondents have moderate knowledge who had one year experience, only 37.5 % of

respondents have moderate knowledge who had three years experience in NRHM programme.

Table No 6: Association between Training under gone and Knowledge level of Respondents on maternal mortality rate

Table 6: Represents association between training under gone NRHM and knowledge level of respondents regarding maternal mortality. The results indicated that the (0.0percentage) of health workers who get the training in NRHM have inadequate knowledge and 48.8 percentage of health workers who had not under gone the training in NRHM had inadequate knowledge. The chi square value indicated that there was significant association between training under NRHM and Knowledge level of respondents regarding maternal mortality

n=90

Training undergone in NRHM	Knowledge level of respondents						X^2 Value
	Inadequate		Moderate		Combined		
	N	%	N	%	N	%	
Yes	0	0.0	8	100.0	8	100.0	
No	40	48.8	42	51.2	82	100.0	7.02*
Total	40	44.4	50	55.6	90	100.0	

4. Discussion

The findings were discussed under the demographic characteristics and knowledge of health workers regarding maternal mortality. According to age, majority (54.4 percent) of the health workers were in the age group of 31 to 40 years. In relation to the gender, 66.7 percent of the health workers respondents were male. Regarding the educational status of health workers, 61.1 percent were diploma holders. Regarding occupation each category of health workers constituted 33.3 percent HW (F), HW (M), and AWWs and regarding experience in National Rural Health Mission programme 45.6 percent of health workers are having no experience. It was observed that 91.1 percent did not undergo training in National Rural Health Mission. The findings of the study revealed that overall mean knowledge of health workers was found moderate (50. 0 percent) on maternal mortality. Majority of the health workers (52.1 percent) had knowledge regarding maternal mortality, while only 46.5percent of the respondents had the knowledge on factors related to maternal mortality rate.

Janet Bradley et al (2015) conducted a study done on 295 nurses working in 108 Primary Health Centres (PHCs) in Karnataka, India This study demonstrates that provision of case sheets or checklists alone is

insufficient to improve knowledge and practices. However, on-site mentoring in combination with case sheets can have a demonstrable effect on improving nurse knowledge and skills around essential obstetric and neonatal care in remote rural areas of India. We recommend scaling up of this mentoring model in order to improve staff knowledge and skills and reduce maternal and neonatal mortality in India [12].

Recommendations:

- A similar study may be conducted on a larger sample for wider generalization.
- A similar study may be conducted to assess the attitude and practices of Health workers regarding maternal mortality rate and its prevention.
- A comparative study can be undertaken to assess the knowledge and attitude of male and female health workers regarding factors associated with maternal mortality.
- A quasi experimental study can be carried out to assess the effectiveness of structured teaching programme among the health workers regarding maternal mortality and its prevention.
- A similar study can be undertaken among the other health professionals.
- In service education programme is provided to the health workers for improving and updating their knowledge.
- Create awareness in health workers regarding MMR and its prevention working under NRHM

Conclusion

There was significant association observed between knowledge level and selected demographic variables such as ,age, gender, training undergone in National Rural Health Mission, hence alternative Hypothesis (H_1) is accepted.
There was no significant association between the knowledge level and Education, designation, Experience in National Rural Health Mission hence null Hypothesis (H_{o1}) is accepted and alternative hypothesis is rejected
Overall findings revealed that Health workers had only moderate knowledge regarding maternal mortality and its prevention so we need to create awareness in health workers regarding maternal mortality and aims of NRHM

Reference

1. Park K. Text book of preventive and social medicine.19th ed. Jabalpur, M/s Banarsidas Bhanot; 2007. p.364.
2. Ray S. National Rural Health Mission-opportunity for Indian Public Health Association. Indian journal of public health. 2005 Jul 1; 49 (3):171.
3. Kumar S. Challenges of maternal mortality reduction and opportunities under National rural health mission-a critical appraisal. Indian journal of public health. 2005 Jul 1;49 (3):163.
4. http://www.dnaindia.com/health/report-india-needs-to-fight-maternal-mortality-rate-with-sense-of-urgency-study-2346399
5. Sundararaman T, Jain K, Raman VR, Singh PD. National Rural Health Mission–Hopes and Fears. EDITORIAL BOARD. 2005:156.
6. Shukla A. National Rural Health Mission–Hope or disappointment? Indian journal of public health. 2005 Jul 1; 49(3):127-32.
7. Sanjay D. A study on utilization of untied funds in sub-centre in Indore division under NRHM. Health and Population: Perspective and issues. 2008; 31 (2):94-8.
8. Pal D.K., Neelam A. Toppo, Tekhre Y.L., Das J.K, Bhattacharya V., Menon S. An appraisal of Janani Sahyogi Yojana in the state of Madhya Pradesh Vol.31,No.2, 2008
9. Mahanty MK, Das S, Misro MM, Kumar P, Shivdasani JP, Nandan D. Functioning of Village Health and Sanitation Committees in Orissa State. Health and Population: Perspectives and Issues. 2008; 31 (2):113-9.
10. Bellad MB, Vidler M, Honnungar NV, Mallapur A, Ramadurg U, Charanthimath U, Katageri G, Bannale S, Kavi A, Karadiguddi C, Sharma S. Maternal and Newborn Health in Karnataka State, India: The Community Level Interventions for Pre-Eclampsia (CLIP) Trial's Baseline Study Results. PloS one. 2017 Jan 20; 12 (1):e0166623.
11. Bradley J, Jayanna K, Shaw S, Cunningham T, Fischer E, Mony P, Ramesh BM, Moses S, Avery L, Crockett M, Blanchard JF. Improving the knowledge of labour and delivery nurses in India: a randomized controlled trial of mentoring and case sheets in primary care centres. BMC health services research. 2017 Jan 7; 17 (1):14.