International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2015): 6.391

# A Pregnant Women Group and its Effects on Maternal and Neonatal Health Services around Labor, Birth and the First Days after Birth among Vulnerable Community of Makwanpur, Nepal

**Shrestha, Bhagawan Das, MPH[1]; Dr. Rimal, Nirmal, MBBS, MMed, PhD[2]**

[1]Ph. D. Scholar, Mewar Univerty

[2] Ph.D. Supervisor, Mewar University

**Abstract:** ***Maternal and newborn deaths are still high in Nepal partly due to the big gap on the utilization of health care services around childbirths between the rich and the poor despite the fact that services are free of cost at government health facilities. The government of Nepal initiated the pregnant women group (PWG) approach to boost the number of women accessing to health care services especially among vulnerable populations. The study compared the utilization of health care services among PWG members and non-members in the disadvantaged community in Makwanpur District of Nepal. In the result, there is increase in the utilization of health care services during pregnancy, labour, after birth was statistically significant (P<0.001 for most of the indicators) among women who were PWG members in their last pregnancy than who were not. Despite the fact that their average age, educational status, parity, ethnicity, location and health facility services were not statistically different between PWG and non-PWG members.It is evident that PWG approach helped bridge the equity gaps between rich and poor by increasing the utilization of health care services during the pregnancy, at birth and after birth for mother and newborn among the members of pregnant women's group of the disadvantaged community in hill district Makwanpur, Nepal.***

**Keywords:** Pregnant women's group, Maternal and Neonatal Health Services, Vulnerable Community and disadvantage groups

## 1. Background

Maternal and newborn deaths are high in Nepal due to big gap on utilization of health care services around child births between rich and poor, e.g. poorest quintile 10.7% skill births attendant but richest 81.5%, despite the services are free of cost at government health facilities (MOHP Nepal). In Nepal, there are large inequalities in the utilization of maternal and newborn health care services. According to Government of Nepal, Central Bureau of Statistics/the United Nations Children's Fund (UNICEF), 2015, Multiple Indicator Cluster Survey (MICS) 2014, the inequalities on utilization of maternal and newborn health services by wealth and educational status are illustrated in the table # 1 below:

**Table 1:** Inequalities on utilization of maternal and newborn health services

| S. No. | Indicators | Poorest 20 Percent (%) | Richest 20 Percent (%) | None Education (%) | Higher Education (%) | National Average (%) |
|---|---|---|---|---|---|---|
| 1 | 4 or more antenatal visits | 40.6 | 88.4 | 40.8 | 83.2 | 59.5 |
| 2 | Any skill providers of antenatal care | 39.7 | 95.7 | 56.5 | 88.1 | 68.3 |
| 3 | Delivery assisted by any skilled attendant | 25.5 | 93.3 | 36.2 | 82.3 | 55.6 |
| 4 | Delivered in health facility | 27.9 | 90.7 | 36.6 | 79.6 | 55.2 |
| 5 | PNC visit for newborns | 32.9 | 70.9 | 40.2 | 67.4 | 57.6 |

Thus Nepal Government initiated pregnant women group (PWG) approach for vulnerable populations. PWG is a socially cohesive peer support group of 8-15 pregnant women and postnatal mothers -meet monthlyfor participatory teaching learning on health care around the birth facilitated by female community health volunteers.

The PWG approach includes two activities (1) monthly health education sessions for PWG by using a behavioural mapping mat for self-monitoring facilitated by female community health volunteers (FCHVs), and (2) semi-annual publicly group commitments meetings. At the meetings, husbands and mothers-in-law verbally commit to support their pregnant wives and daughters-in-law in front of pregnant women, FCHVs, and local health staff also commits to provide those services.

## 2. Methodology

It was a retrospective cohort study with sample size of 423 randomly selected recently delivered women in the last one year who were also members of PWG and next 423 non-members postpartum women from 28 same villages of Makwanpur out of the total 169 pregnant women's groups in Makwanpur. The proportions of disadvantaged women in the sample were 83.0% in PWG and 80.6% in non-PWG. The data was collected by subjecting the respondents to structured questionnaire and focus group discussion (FGD)

with female community health volunteers (FCHVs) from March to April 2015. Two out of 28 village development committees (VDCs) were selected randomly for FGD with female community health volunteers.

The sample size for the quantitative data was calculated with standard formula. To determine the total sample size, the reference prevalence (p) of the national prevalence of maternal and newborn health services coverage was taken to be 50%. Using 5% as the allowable error, and 10% as non-response, the total sample size was 423 mothers who delivered live or still births in the last one year as per the formula $Z^2$ x p x (1-p) x design effect x (1+nr)/$d^2$. Then the data of the exposed and non-exposed groups were compared and statistical tests were performed to know whether there was an association between MNCH service coverage and PWG approach.

The focus group discussion (FGD) was designed with standard FGD guidelines for the qualitative data. Two FGD with female community health volunteers (FCHVs) was conducted at randomly selected two VDCs namely Churiayamai and Fakhel. The question was "How does the PWG behavioural mapping mat increase the utilization of maternal and new-born services?"

## 3. Results

The utilization of health care services around labor, birth and the first days after birthare increased statistically significant (Chi-square test) level of P=<0.001 in most of the indicators among women who were the PWG members in their last pregnancy than who were not though the average age, educational status, parity, ethnicity, location and health facility services are not difference between PWG and non-PWG respondents.

The study compared the utilization of health care services among PWG members and non-members in the disadvantaged community in Makwanpur. It was a retrospective cohort study with sample size of 423 randomly selected women who have delivered recently in last one year and were members of PWG, and other 423 women who were non-members from 28 same village development committees of Makwanpur. The proportions of disadvantaged women in the sample were 83.0% in PWG and 80.6% in non-PWG. The data was collected by subjecting the respondents to structured questionnaire between March and April 2015. Retrospective design was applied to collect the data. The analysis was centered towards addressing the following research objectives:

1. To examine the coverage of maternal and newborn health services between pregnant women group (PWG) members and non-members in a disadvantaged community of Makwanpur hill district of Nepal;
2. To draw the epidemiological conclusion whether the pregnant women group (PWG) increases the utilization of maternal and newborn health services in hill district; and
3. To assess the behavioral mapping mat used by pregnant women for self-monitoring in pregnant women group (PWG) as an appropriate health education methods for illiterate disadvantaged pregnant women's group.

Regarding the objective #1 and 2, the results indicated that the increase in the utilization of health care services during pregnancy, labour, after birth was statistically significant (P<0.001 for most of indicators) among women who were PWG members in their last pregnancy than who were not. Despite the fact that their average age, educational status, parity, ethnicity, location and health facility services were not statistically different between PWG and non-PWG members. The coverage of maternal and newborn health services among pregnant women group (PWG) members and non-members are shown on the table # 2: summary of findings. Regarding the objective #3 assessing the behavioural mapping mat is described below.

**Table 2:** Summary of findings

| Coverage of MNCH care services utilized in the last pregnancy by RDW | PWG (n= 423) (%) | NPWG (n= 423) (%) | Coverage Differences (PWG minus NPWG) (%) | Relative risk (RR) | 95% confidence interval (CI) | Attributable risk (AR) (%) | Level of significance P-Value (Chi-square calculated value) | Null hypothesis accepted or rejected |
|---|---|---|---|---|---|---|---|---|
| 4+Antenatal care visits | 96.2 | 57.5 | +38.7 | 1.7 | 1.5 - 1.8 | 40.3 | <0.001 (178.6) | Rejected |
| Iron/folic acid started at 4-month | 98.1 | 66.2 | +31.9 | 1.5 | 1.4 - 1.6 | 32.5 | <0.001 (146.92) | Rejected |
| Iron/folic acid for 6-months | 97.4 | 61.0 | +36.4 | 1.6 | 1.5 - 1.7 | 37.4 | <0.001 (170.15) | Rejected |
| Birth Preparedness (money, blood donors and transportation) | 67.0 | 8.0 | +59.0 | 8.3 | 5.2 - 13.3 | 88.0 | <0.001 (129.41) | Rejected |
| Institutional delivery | 74.2 | 58.6 | +15.6 | 1.3 | 1.2 - 1.4 | 21.0 | <0.001 (21.71) | Rejected |
| Delivery by skilled birth attendant | 75.9 | 58.6 | +17.3 | 1.3 | 1.2 - 1.4 | 22.7 | <0.001 (28.6) | Rejected |
| 3+postnatal check-up | 9.2 | 4.0 | +5.2 | 2.3 | 1.3 - 4.0 | 56.4 | 0.002 (9.26)) | Rejected |
| Postnatal vitamin-A | 98.6 | 79.7 | +18.9 | 1.2 | 1.2 - 1.3 | 19.2 | <0.001 (78.05) | Rejected |
| All 5-essential newborn cares as mentioned below | 24.8 | 7.1 | +17.7 | 3.5 | 2.4 - 5.1 | 71.4 | <0.001 (49.58) | Rejected |
| 1. Wiped the newborn with clean, dry and soft cloth | 96.0 | 75.7 | +20.3 | 1.3 | 1.2 - 1.3 | 21.2 | <0.001 (71.82) | Rejected |
| 2. Kept the newborn on mother's chest (Kangaroo mother care) | 81.8 | 44.6 | +37.2 | 1.8 | 1.6 - 2.0 | 45.4 | <0.001 (125.33) | Rejected |
| 3. Breastfed within one hour of birth | 90.5 | 53.9 | +36.6 | 1.7 | 1.5 - 1.8 | 40.5 | <0.001 (141.55) | Rejected |
| 4. Nothing applied, kept clean and dry the umbilicus stump | 46.3 | 21.5 | +24.8 | 2.1 | 1.7 - 2.7 | 53.6 | <0.001 (58.14) | Rejected |
| 5. Delayed bath after 24 hours of birth | 58.9 | 25.5 | +33.4 | 2.3 | 1.9 - 2.8 | 56.6 | <0.001 (96.35) | Rejected |

Institutional delivery is increased by 15.6% in PWG than non-PWG, relative risk (RR) 1.3, 95% confidence interval (CI) 1.2-1.4; skilled birth attendant by17.3%, RR=1.3, CI=1.2-1.4; 3+postnatal visits by5.2%, RR=2.3, CI=1.3-4.0; newborns wiped with clean, dry and soft cloth by 20.3%, RR=1.2, CI=1.1-1.3; newborns kept on mother's chest by37.2%, RR=1.8, CI=1.6-2.0; Breastfed within 1-hour by36.6%, RR=1.7, CI=1.5-1.8; Nothing applied-clean/dry umbilicus stump by 24.8%, RR=2.1, CI=1.7-2.7; Delayed bath 24-hours by33.4%, RR=2.3, CI=1.9-2.8.

The null hypothesis is rejected for above mentioned indicators on maternal and neonatal health services around labor, birth and the first days after birth among vulnerable community of Makwanpur, Nepal at less than 0.001 (p-value) level of significant. The calculated chi-squire values are ranging from 21.71 for institutional delivery to 178.6 for four or more time antenatal care visits which are higher than the critical value of chi-squire of 16.27 at 0.001 level of significant at 3 degrees of freedom at Critical Values of Chi-squire table

The findings of focus group discussion with female community health volunteers reveals that the behavioural mapping mat used by pregnant women for self-monitoring of utilization of maternal and newborn health services is an appropriate health education methods. The mat helped to visually inform the service utilizations like antenatal check-up, taking iron and folic acid tablet and taking tetanus toxoid vaccine for the illiterate women. The mat also used to create peer pressure - more Tika (a coloured round and small sticker which usually Nepalese women use in their forehead for beauty) in the house mark of pregnant women in the mat reflects more services she had already taken. They also added that PWG programme made pregnant women proactive for health service utilization and increased curiosity among pregnant women.

## 4. Discussion

Four or more times ANC check-up visits of the respondents is 96.2% among those who were the pregnant women group (PWG) members in the last pregnancy but only 57.3% among non-PWG (NPWG) members. There was almost 1.7 times more risk of not to utilize ANC services among NPWG members than PWG members as the relative risk (RR) is 1.675. The PWG approach alone contributed 38.8% on coverage of the ANC check-up visits as the % of attributable risk (AR) is 38.77%. The null hypothesis of PWG approach did not increase the utilization MNCH service was rejected for the ANC visit as the probability of chance (P) was >0.001 (Level of significance P-Value) as the calculated Chi-square value 178.6 is greater than critical value of Chi-square tableat 3 degrees of freedom. As the same ways, we can see on the above table that all the indicators are highly significant difference between exposure group (PWG) and non – exposure group (NPWG).

A previous study conducted by Pahwa Parika and Sood Aditya intended to assess the utilization of maternal health services by women residing in urban slum areas of district Mohali, Punjab. A cross – sectional descriptive study was carried out and a total of 164 respondents were interviewed using a semi-structured questionnaire by door to door survey. As many as 77% of the respondents received antenatal care, out of which 59% completed 3 visits of ANC. 23% of the women did not receive even 1 ANC check-up (Pahwa & Sood, 2013). The findings of the present study conducted in Makwanpur district of Nepal shows the better situation of ANC service than the Mohali district of India. In Makwanpur district, NPWG has 91.3% mother who had received the ANC care where 74.9% had completed 3 visits. The PWG group had even better, that is 100% mother had received the ANC care where 99.5% had completed 3 visits.

Similarly, a cross sectional study conducted over a period of one year, by using 30 clusters random sampling technique, with sample size of 450 by Shireen Sharma et.al. found that majority of beneficiaries (80%) received first antenatal care during first trimester followed by 16.1% in second trimester and 3.9% in third trimester. Among non-beneficiaries, the time of first antenatal visit was first trimester in 78.9% mothers, second trimester in 16.1% mothers and third trimester in 4.5% mothers (Sharma, Arora, Shahjada, Mahashabde & Bachhotiya, 2014, p. 212)

## 5. Conclusions

By these study findings, it is evident that PWG approach helped bridge the equity gaps between rich and poor by increasing the utilization of health care services during the pregnancy, at birth and after birth for mother and newborn among the members of pregnant women's group of the disadvantaged community in hill district Makwanpur, Nepal.

In conclusion, PWG approach is recommended to replicate in the disadvantaged communities where maternal, newborn and child health (MNCH) care services coverage are low by considering following points:

- Repeated monthly participatory teaching learning on key maternal, newborn and child health (MNCH) care services messages (like danger signs during the pregnancy, at birth and after birth, and danger signs for newborn) directly to a Pregnant Women Group (PWG);
- Pregnant women self-monitoring of the utilization of the MNCH care services by using a behavioural mapping during the PWG meeting;
- Biannually a publicly group commitments session where husbands and mothers-in-law commits to support their pregnant wives and daughters-in-law for the utilization MNCH care services in front of the PWG members, FCHVs, and local health staff;
- The commitments by the local health facility staff to provide those MNCH services in the same biannually publicly group commitment session of husbands and mother in laws;
- Sharing the postnatal mothers' experiences and lesson learned in the pregnant women's group's meeting by postnatal mothers; and
- Scaling up the pregnant women's group approach in disadvantage community where the coverage of MNCH care services is low.

It is suggested for the future research on the PWG approach and its impact on maternal and newborn morbidity and mortality in disadvantaged community of hill geographical areas where utilization of maternal and newborn health care services are low in developing countries.

## References

[1] Baral, KP. Concept and approach of pregnant women's group: An approach to increase coverage of maternal health services in rural Nepal, Kathmandu: Nepal. 2006.
[2] Government of Nepal, Central Bureau of Statistics/the United Nations Children's Fund (UNICEF). 2015. Multiple Indicator Cluster Survey (MICS): Key Findings & Tables. Kathmandu. Nepal Ministry of Health and Poplulation (MOHP) [Nepal], New Era, and ICF International INC. (2012). *Nepal Demographic Health Survey 2011*. Kathamndu, Nepal:Ministry of Health and Population, New ERA, and ICF International, Calvarton, Maryland.
[3] Manandhar DS, Osrin D, Shrestha BP, et al, members of the MIRA Makwanpur trial team. Effect of a participatory intervention with womens groups on birth outcomes in Nepal: cluster randomized controlled trial. *Lancet 2004*; **364**: 970–79.
[4] Maskey M.K, Baral K.P., Shah R, Shrestha BD, Janet L. & Kenneth J. R. Field test results of the motherhood method to measure maternal mortality. *Indian J Med Res 133*, January 2011, pp 64-69
[5] Sharma, Arora, Shahjada, Mahashabde, & Bachhotiya, 2014, Evaluation of antenatal checkup practices observed among beneficiaries & non beneficiaries under Janani Suraksha Yojana scheme in Indore, India. National Journal of Community Medicine | Volume 5 | Issue 2 | Apr - June 2014 | p 209 and p 212 www.njcmindia.org
[6] Shrestha B.D. Pregnant Women's Groups and the Impact on Newborn's Mortalities in Bara District, Nepal. Nepal Public Health Association (NEPHA) Newsletter, Volume #1, Issue # 2, Pg 8, November 2009