Original Article

Proportion and factors affecting for post-natal care utilization in developing countries: A systematic review

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Abstract

Background: Majority of neonatal and maternal mortalities occur in developing countries. Moreover, around half of both mortalities occur in immediate postnatal period. Postnatal care utilization is aimed to reduce both mortalities and promote their health status.

Methods: We searched PubMed, Google Scholar and HINARI between Jan 1, 2006 and Apr 31, 2014. Cross-sectional studies, surveys published in English language with finding of percentage of and factors affecting postnatal care utilization were included in the analysis. Weighted percentage with 95% CI was calculated to summarize the proportion. Odds ratio of minimum and maximum value was used to summarize associated factors. P-value <0.01 was taken as cut-off for significance of associated factors.

Results: Of 45 accessed and reviewed full-text articles, nine included in the review. The studies were conducted in seven countries and total postnatal mothers in all samples were 49385. The weighted percentage of postnatal service utilization was 36.0 (95% CI, 22.5-49.5). Mother's and husband's higher educational level; higher wealth quintile of the family; occupation; mother's age at last delivery; number of ANC visit; and number of pregnancy were found associated with postnatal care utilization.

Conclusion: The data that only around one in every three mothers utilizing post-natal care shows that scaling-up and improving the service is imperative. The education including literacy programs for both mother and husband; scaling-up of 4th ANC visit; creating earning opportunities for mothers and focusing the mothers of 20-30 years age group would be some intervening areas, however, further evaluation and reviews from interventional designs are suggested before reaching the firm conclusion.

Key words: Post natal care, developing countries, Utilization.

Introduction

The highest risk of death for both newborns and mothers occurs around the time of childbirth and the immediate postnatal period. More than two-thirds of newborn deaths occur by the end of the first week after birth, with up to one-half of all deaths occurring in the first 24 hours of birth. Similarly, approximately two-thirds of all maternal deaths occur in the postnatal period. [1] More than two-third of maternal deaths (62%) occur soon after birth with postpartum hemorrhage. Earlier studies at multinational level have shown that some 50% of maternal deaths and 40% of neonatal deaths occur within 24 hours after birth, also known as the immediate postnatal period.[2] Complications following childbirth such as chronic pain, impaired mobility, damage to the reproductive system, genital prolapsed and infertility are also more common in developing countries. [3]Postnatal care is one of the most important maternal health-care services for not only prevention of impairment and disabilities but also reduction of maternal mortality. The postpartum period starts about an hour after the delivery of the placenta and includes the following six weeks.[4] It is widely accepted that the use of maternal health services helps in reducing maternal morbidity and mortality. However, the utilization of maternal health services is a complex phenomenon influenced by many factors. Various studies conducted worldwide and in India have recognized socio-economic factors and service delivery environment as important determinants for the use of maternal health services. A study on influence of community-level characteristics on the use of maternal and reproductive health services conducted in Uttar Pradesh state of India reported strong community-level influences on service use.[5] Several factors such the availability, accessibility, socioeconomic status of the users, and women's autonomy in household decision-making and quality of services as well as the characteristics of the users and communities in which the users live is directly associated with utilization of PNC in developing countries. [6] Studies from rural Bangladesh found that some of these factors were positively associated with the utilization of health services. [7] The aim of this study is to characterize and to find out the proportion of post-natal care utilization in developing countries.

Methods

Search strategy and selection criteria

We searched PubMed, Google Scholar and HINARI for published articles from 2006 Jan 1 to 2014 April 31. The articles were searched, retrieved and managed by using EndNote (version X3) software. The key words entered were 'utilization of Postnatal services' NOT 'developed or high-income country' OR 'utilization AND postnatal services AND Nepal OR 'utilization of maternal health services in developing or low and middle income countries' OR 'factor associated with PNC services in Nepal' OR 'factor affecting AND utilization of PNC AND south east Asia region OR 'utilization of maternal health services in Nepal' OR 'PNC services AND Bangladesh'. Other data sources included national demographic and family health surveys.

Screening and data extraction

Only published articles in English language and based on cross-sectional studies, carried out among Married Women of Reproductive Age (MWRA) in developing countries were reviewed. Besides this, the surveys carried out among women examining any aspect of the utilization of PNC in developing countries; Articles with cross sectional study designs were included in the review. The data extraction was done manually and filled in the table.

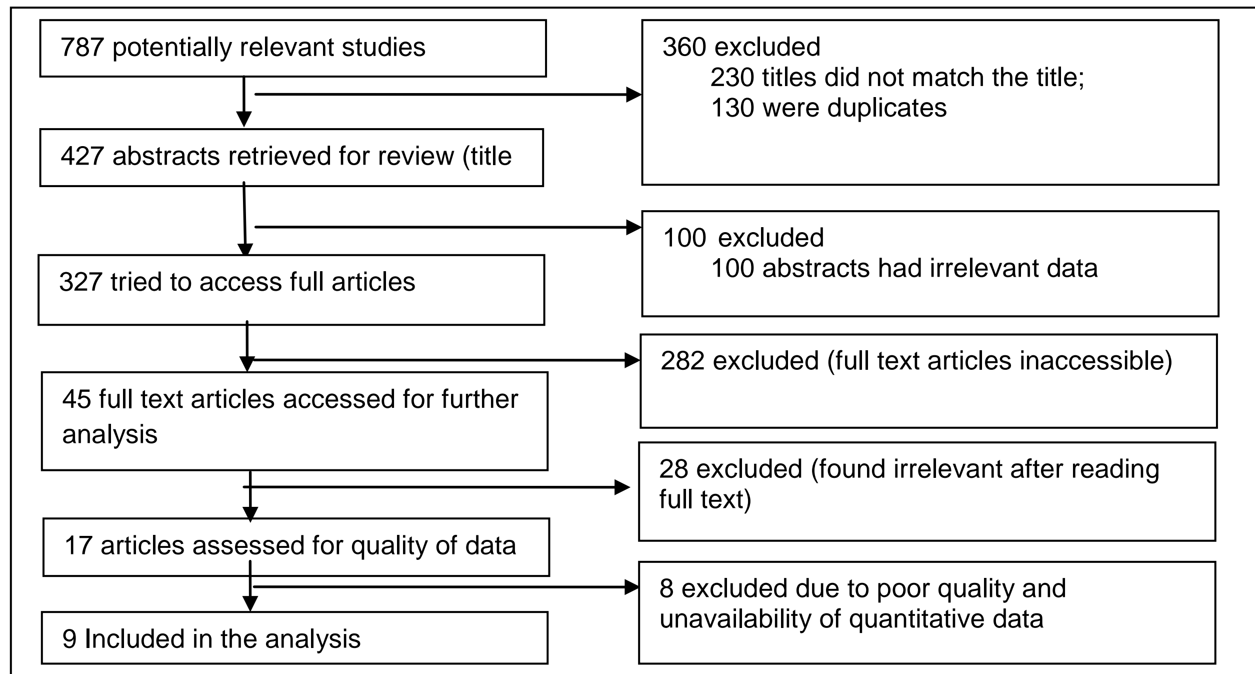

Fig. 1: Flowchart of included studies

Statistical analysis

The weighted percentage was calculated from the percentages of different 9 original studies conducted in seven developing countries. One study [7] conducted in three countries i.e., Nepal, Malawi and Bangladesh had three samples from respective countries and dealt as three studies; rendering 11 sample studies. The 95% CI was calculated on the basis of standard error of percentages of 11 sample studies. Both weighted and 95% CI of percentages were calculated in MS-Excel 2007.

Results

The countries of study were Nepal, Palestine, India, Nigeria, Bangladesh, Malawi and Ethiopia. At least one post-natal care utilization as a weighted proportion within 42 days of delivery was 36.0 (95% CI, 22.5-49.5); ranging from 11% in Bangladesh to 50% in Nepal (table 1). The proportion ratio between the richest (77.1%) and the poorest (22.7%) revealed 3.4. Similarly, the review showed that the care utilization was higher in private (96.0%) than in public (72.4%) institutions.

Table 1: Percentage of postnatal care utilization and total weighted percentage

SN	Article	Country	Study year	Study population	Sample size	Study design	Utilization Rate
1.	Dhakal 2007	Nepal	2006	MWRA	150	Cross-Sectional	34% in 1st and 19% in 2nd (received within 48 hours of giving birth)
2.	Dhaher 2008.	Palestine	2006	MWRA	264	Cross-Sectional	36.6% received PNC
3.	Jat 2011	India	2007	MWRA	15,782	Cross-Sectional	37.4% women received postnatal care within two weeks

4.	Rai 2012	Nigeria	2008	Married adolescent (aged15–19 years) women	2,434	Demographic and Health Survey	32% received postnatal care within 42days of delivery
5.	Singh 2012	India	2005 - 2006	Married adolescent mothers in rural areas. (aged15–19 years)	23,955	National Family Health Survey (NFHS)	35%
6.	Sitrin 2013	Bangladesh, Malawi & Nepal		MWRA	398 900 615	Cross-Sectional	Home visits within three days after birth was 57% in Bangladesh; 11% in Malawi; and 50% in Nepal
7.	Paudel 2013	Nepal	2012	MWRA	223	Community Based Cross Sectional Study	25.1% attended any PNC; 13.5% attended early PNC (within 24 hours of delivery) and 19.3% sought PNC service from health workers
8.	Workineh 2014	Ethiopia	2013	MWRA	594	cross-sectional	20.2%
9.	Khanal 2014	Nepal	2011	MWRA	4079	Cross-Sectional	43.2% (95%CI; 39.9 – 46.5%)
Total sample size and weighted proportion					49,385		36.0% (95%CI, 22.5%-49.5%)

Maternal secondary level or above schooling; housewife being the occupation; husband's secondary or above level schooling; age of 20-30 years at last delivery; richest wealth quintile; second or higher pregnancies and higher ANC visits were found to be higher odds of postnatal care utilization (Table 2).

Table 2: Significantly associated ($p<0.01$) variables and odds ratio

SN	Variables	Reference category	Odds ratio (min-max)	No. of studies	Study references (Table 1)
1.	Mother's educational level	Illiterate	0.19-6.49	All (9)	1-9
2.	Occupation	Farmer/Agriculture worker	0.33-7.25	5	1-3, 8,9
3.	Husband's education	Illiterate	1.01-6.33	5	1-5
4.	Age at last delivery	≥35 years	1.66-1.90	6	1-4,6,9

5.	Wealth quintile	Poorest	0.98-2.74	2	3,5
6.	No. of pregnancy	One	0.72-3.68	1	7
7.	No. of ANC visit	Zero	3.32-3.71	1	7

Discussion

The review has evaluated a limited number of studies published in English during 2006-2013 AD. Nine studies have mentioned the proportion of PNC utilization and effect size of different factors. important role of maternal education that play for utilization of PNC followed by husband's education, women occupation, and socioeconomic status. Out of 9 reviewed articles, the weighted PNC utilization proportion was calculated 36.0 (95% CI, 22.5-49.5) and ranged from 11% in Bangladesh to 50% in Nepal. It indicates below average utilization rate of PNC in developing countries.

Maternal education; husband's education; and occupation are the strong factors having odds ratio above five revealed as strong factors; whereas number of pregnancy and number of ANC visits having above three odds ratio show up as moderate factors; and richest wealth quintile and age at last delivery having odds ratio less than three revealed as weak factors. These factors along with their effect-sizes could be helpful in bringing out higher utilization rate in developing countries and thereby increasing maternal and neonatal health status.

Contributors

CA developed the review guideline and data extraction and calculation strategy. RKY, PT, RO, DG and AG retrieved the articles; extracted the data and calculated the summary proportion. RKY, PT, RO, DG and AG prepared the draft manuscript. CA edited the draft and prepared the final manuscript.

Conflicts of interests

We declare that we have no conflicts of interests.

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*Note : Article of which data has been included in systematic review.