



UTILIZATION AND PERCEPTION OF JSY SERVICES AMONG MOTHERS AND ITS IMPACT ON MMR IN INDIA: A SYSTAMATIC REVIEW

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Abstract

Objective: This systematic review was performed to assess the present state of utilization of Janani Suraksha Yojana throughout this transition period from 2010 to 2020.

Methods: Inclusion criteria for selection of studies were: 1) studies from India. 2) articles published in peer-reviewed journals, 3) Any kind of quantitative study reporting JSY services 4) English language only 5) Postnatal women. All studies were reviewed and assessed.

Result: Many research studies examining the impact on health outcomes have found insufficient evidence regarding effects on maternal and newborn mortality and morbidity outcomes. While four studies showed that JSY (Janani Suraksha Yojana) was effective in increasing institutional delivery rates, none of the research indicated a significant correlation between the implementation of JSY and a reduction in maternal mortality. Majority of the studies conducted in low performance state as comparison to high per formance state.

Conclusion: This study informs the planning of maternal health programs, emphasizing key considerations for schemes employing conditional cash assistance to enhance both maternal and child well-being.

Keywords: J.S.Y, MCH, ANC, PNC, Utilization, ASHA.

HIGHLIGHTS

- Utilization and perception of JSY services and its effect on MMR. Each state in India has different practices related to J.SY services.
- In a few states, facilities in health care sectors were reported as improved for maternal mortality rate.

INTRODUCTION

Every expectant mother aspires to achieve a safe delivery and the birth of a healthy baby, necessitating top-notch prenatal care.¹ The significance of quality prenatal care cannot be overstated, as it plays a crucial role in ensuring the overall well-being of both the mother and the infant, mitigating the potential risks of low birth weight, premature birth, and infant mortality. ²Throughout the pregnancy

journey, a comprehensive approach to prenatal care is essential, encompassing the pregnant woman, her family, and community, along with the expertise of skilled caregivers such as midwives.^{3,4} Maternal health globally, vital for women during pregnancy and childbirth, faces challenges. Annually, over 600,000 of the 150 million pregnancies result in maternal deaths. Underdeveloped countries experience 50 to 100 times higher maternal death risks than industrialized nations.^{5,6} In India, high mortality links to untrained home deliveries, teenage pregnancies, and underused ANC services. The Janani Suraksha Yojana (JSY) by the Indian government aims to improve maternal and child health, offering incentives for antenatal check-ups and institutional deliveries to curb maternal mortality.⁷

The 2016-18 Registrar General of India (RGI) report indicates a decrease in India's maternal mortality rate (MMR) from 122 (2015-17) to 113 (2016-18). Despite progress, India missed UN and National Health Policy targets.^{8,9} The Janani Suraksha Yojana (JSY) aims to boost institutional deliveries and reduce maternal mortality. Launched in 2005, JSY operates nationwide, emphasizing low-performing states. Under Janani Shishu Suraksha Karyakram (JSSK), pregnant women receive free delivery, including cesarean section, along with transport, diagnostics, medicines, consumables, food, and blood. Improved JSY service utilization is crucial for meeting MCH goals and the UN's target to reduce global MMR below 70 by 2030. The researcher plans to study JSY service utilization and influencing factors for future action.^{10,11}

Material and Methods

Eligibility Criteria

Inclusion criteria: In this study include literature those are following guidelines mentioned below-

1. **Population:** Postnatal mothers,
2. **Intervention :** JSY services,
3. **Related outcome:** Registration of pregnant women, Awareness regarding JSY services, ANC and PNC services, transport facility and cash beneficiaries, factors influencing JSY services and impact of implementation of JSY on MMR,
4. **Duration:** literature publish during 2010 to 2020,
5. **Language:** English literature only,
6. **Types of study:** Analytical cross sectional study, descriptive study cross sectional study, survey.

Exclusion Criteria:

Excluded from consideration were letters, editorials, commentaries, meta-analyses, conference papers, and any studies unrelated to the topic or failing to meet the review's objectives. Additionally, literature not accessible in full-text journal format and duplicate articles were excluded.

Search strategies

- The search approach was formulated to retrieve published materials and involved three phases:
 1. An initial exploration of Medline, Google Scholar, and Research Gate was conducted to recognize pertinent keywords within the title, abstract, and descriptors.
 2. The terms identified through this process, along with the synonyms employed by the respective databases, were utilized in a comprehensive literature search.
 3. The reference lists and bibliographies of articles gathered during the second stage were also examined.

Table No. 1. : Literature search details table.

Search Strategy	List of databases and e-journals searched
<ul style="list-style-type: none"> • Keywords used: Janani Suraksha Yojana, utilization, impact, Conditional cash transfer, Institutional delivery, Maternal mortality, Cash assistance scheme, JSY impact on MMR. Factors influencing JSY services. • Used with MESH terms OR , AND • Search was limited to publication year 2010 – 2020 	<ul style="list-style-type: none"> • Pub Med • Research Gate • Indian Journal of Public Health • BMC Health Services Research • Google scholar • Elsevier • International Journal of Gynecology and Obstetrics • The Journal of Family Welfare • International Journal of Epidemiology • Social science and medicine

Selection of studies

Researchers (P.J, M.A.M, V.D) screened the titles and abstracts for their eligibility. The full text was then revised to confirm an eligibility criteria match.

Data Collection Process

Using a pre-established data extraction template, researchers autonomously gathered the following information from the studies incorporated in this systematic review: (1) particulars of the study, encompassing the primary author's name, publication year, the country in which the study was conducted, study design, sample size, objectives, methodologies, and instruments; (2) Evaluation of the effectiveness of J.S.Y services on MMR, utilization of MCH cash-based benefits, and factors influencing the utilization of JSY services. The studies were initially screened by the researchers based on titles and abstracts. If the articles met the eligibility criteria, a thorough examination of the full text was conducted to assess the study. In instances of disparities between investigators, discrepancies were resolved through discussion.

RESULT

Study's Selection:

Utilizing a standardized form on Microsoft Excel 2021, data extraction was performed to gather information from selected studies, covering impact outcomes, general aspects, and methodology. The form systematically recorded details such as publication year, study design, duration, sample, and assessed outcomes. Initially, 278 articles were identified from databases, and after eliminating duplicates, 262 articles underwent screening based on inclusion criteria present in their titles and abstracts. In the first screening stage, 221 articles were excluded, leaving 45 studies for a more detailed second screening. The full-text papers of these 45 studies underwent thorough review, ultimately resulting in 27 articles being deemed eligible for inclusion in this systematic review.

Study Characteristics

Out of the 27 studies, 14 were categorized as cross-sectional studies, 4 involved secondary data analysis, 3 were identified as cross-sectional mixed-method studies, 2 were retrospective studies, 2 were prospective cohort studies, 1 was a prospective study, and 1 was explorative descriptive. The majority of these studies, comprising 81% (n = 22), were conducted within the initial 10 years of the scheme's implementation, with the remaining 19% (n=5) assessing the scheme more than a decade after implementation. Thirteen studies were carried out in states with lower performance. The methodology of the studies lacked clear articulation in the articles. Secondary data sources included the Sample Registration System (SRS), annual health survey, and national health survey.

Approximately 28% of deliveries occurred in 2017. Limited studies addressed maternal mortality rate (MMR) using primary data sources, with only 3% of the literature providing specific MMR data.

Effectiveness of JSY scheme on MMR.

The amalgamation of findings from the chosen six studies explored the impact of the Janani Suraksha Yojana (JSY) system on maternal mortality rates in India. The consistent trend across all six studies (83%) indicated a decrease in maternal mortality rates subsequent to the implementation of JSY services, coinciding with a rise in institutional deliveries. Various researchers, including Hanimi Reddy in 2012, Hiralal Konar in 2013, William Joe Suresh Sharma in 2015, and Ruma S. Anand in 2016, conducted these studies at different time points, consistently reporting this decline.

Nevertheless, a singular study proposed that despite an uptick in the number of institutional deliveries facilitated by the Janani Suraksha Yojana, there was no noteworthy correlation between JSY-supported delivery rates and changes in maternal mortality rates. Studies by Hiralal Konar, Asit Baran Chakraborty in 2013, Hanimi Reddy Manas R Pradhan in 2012, William Joe Suresh Sharma in 2015, and Marie Ng, Archana Misra in 2014 found no statistically significant association between JSY-supported institutional deliveries and maternal mortality rates post-JSY implementation.

In 2016, Ruma S. Anand and Reeta Singh observed a decrease in major complications, particularly uterine rupture—a substantial contributor to maternal mortality rates—following the introduction of JSY services ($Z=2.5963$, $p<0.05$). This reduction was observed in cases of rupture uterus (Chisquare at 1 df=4.326, $P<0.05$) and maternal mortality.

A solitary study (16%) identified hypertension, hemorrhage, anemia, and sepsis as the predominant causes of maternal mortality. The researcher emphasized the need for further exploration to estimate state-specific maternal mortality rates, underscoring the significance of accurate data collection from each state for future regulatory improvements.

Effectiveness of JSY for the utilization of maternal health services in term of cash benefits.

The utilization of Janani Suraksha Yojana (JSY) services in different states of India is well-documented, with a majority (66%) of the research being published between 2015 and 2020. Notably, studies conducted by Divya Sakal in Chhattisgarh and IPSA in Bhubaneswar and Odisha (2019 and 2017, respectively) demonstrated high levels of awareness among mothers, with 98.70% and 96.37% reporting knowledge of JSY services. Similarly, research by Nramakrishna (2016) and Vikas Kumar (2015) indicated significant awareness among mothers in Bangalore (78.3%) and Agra, Uttar Pradesh (58.87%).

Exploring awareness of the benefits of JSY services, studies conducted in various regions reported notable figures. Sonu Goel's study in Chandigarh (2016) found that 42% of mothers were aware of the benefits, while Madhumita's research in Bihar, Jharkhand, and Bangalore (2019) reported awareness rates of 56.2%. Additionally, S. Devagan in Fridkot (2020), Premlal in Himachal Pradesh (2021), and K. Vikram in Delhi (2013) documented awareness rates of 53%, 55%, and 62.3%, respectively.

The enrollment rates of mothers in hospitals are remarkably consistent across different regions, ranging from 75.5% to 82.6%. This information is derived from studies conducted by IPSA in Bhubaneswar (2017), Rajarajan in Puducherry (2017), Najunda in Karnataka (2015), Parul Sharma in Uttarakhand (2010), and Joshi.P in Uttarakhand (2014). For mothers registering under the Janani Suraksha Yojana (JSY) system in hospitals, the proportion exceeds half in both Prem Lal's study in Himachal Pradesh (2021) and Madhumita's research in Bihar, Jharkhand, and West Bengal (2019).

Concerning the provision of transport facilities from hospitals, nearly identical proportions were reported in studies conducted by Sachin Gupta in Maharashtra (2019) and Vikas Kumar in Uttar Pradesh (2015), with percentages of 40.7% and 48.9%, respectively. Furthermore, IPSA's report in 2012 and Devgan's findings in 2020 indicated that at least 18.54% of mothers in Bhubaneswar, Odisha, and 26% in Fridkot received free transportation.

As per Sachin Gupta's 2019 report in Maharashtra, the majority of mothers (ranging from 93.5% to 98.6%) who availed Antenatal Care (ANC) and Postnatal Care (PNC) services also received ANC visits. This pattern was observed in studies conducted by IPSA in 2012 in Bhubaneswar and Odisha, as well as K Vikram in 2013 in Delhi. Additionally, the majority of mothers, as reported by N Ramakrishna (2016) in Bangalore and Joshi P (2014) in Uttarakhand, had at least three antenatal care visits, with percentages of 76.7% and 74.5%.

In studies conducted by Nanjunda DC in 2016 in Bangalore, Prem Chauhan in 2021 in Bhubaneswar and Odisha, and Vikash Kumar in 2015 in Himachal Pradesh, more than half of the mothers (54.4%, 56.4%, and 48%) received ANC visits. Sonu Goel's research in 2016 in Chandigarh indicated a significant increase in ANC visits (Odds Ratio = 17.4) due to the benefits provided. Additionally, Madhumati's study in 2019 in West Bengal found that one-third of JSY beneficiaries underwent more than four ANC visits.

As per reports from Nattawut Thongkong in 2017 in Odisha and Jharkhand, S. Devgan in 2020 in Faridkot, N Ramakrishna in 2016 in Bangalore, Divya in 2019 in Chhattisgarh, and Priyanka in 2015 in Uttarakhand, the majority of mothers (ranging from 70.83% to 94%) received financial benefits after childbirth. Findings from Parul in 2010 in Uttarakhand, Sachin Gupta in 2013 in Maharashtra, Nanjunda in 2015 in Karnataka, Vikas Kumar in 2015 in Uttar Pradesh, and Dipta K in 2017 in West Bengal indicated that more than half of the mothers received cash payments from the hospital through the Janani Suraksha Yojana (JSY). In contrast, Sonu Goel reported in 2016 that only 34% of women in Chandigarh received monetary compensation from the hospital after delivery.

Factors influencing utilization of JSY services among beneficiary.

The utilization of JSY services is influenced by various factors, as indicated by the information presented in Table 1.5. Several studies conducted by researchers such as Nanjunda D.C in 2015 in Karnataka, Jaya Srivastava and Alex Joseph in 2016 in Uttar Pradesh, Vikas Kumar and Sunil Kumar Misra in 2015 in Uttar Pradesh, and Priyanka Joshi and Gomathi Mahalingam in 2015 in Uttarakhand highlight that a significant obstacle to the use of JSY services is the lack of awareness about the benefits of the JSY scheme. Another barrier identified in the utilization of JSY services is the socioeconomic status of mothers, which hinders their access to health centers, as reported by Jaya Srivastava and Alex Joseph in 2018 in Uttar Pradesh. Three studies emphasize distance as a factor contributing to mothers not availing JSY services, as indicated by Dipta K. Mukhopadhyay and Sujishnu in 2017 in West Bengal, Priyanka Joshi and Gomathi Mahalingam in 2015 in Uttarakhand, and Sukumar Vellakkal and Hanimi Reddy in 2017 in Jharkhand and Madhya Pradesh.

While the JSY scheme offers cash benefits as an incentive for institutional delivery, certain studies reveal that not all JSY beneficiaries receive these benefits. Technical issues in linking Aadhar to the JSY payment system, the absence of mothers' bank accounts, especially in rural areas, unavailability of cash at the time of discharge, and challenges related to Aadhar cards and BPL certificates are factors hindering the receipt of cash benefits, as reported by Divya Sahu and Shanta P. Khes Beck in 2019 in Chattisgarh, Sonu Goel and Deepak Sharma in 2018 in Chandigarh, Jaya Srivastava and Alex Joseph in 2016 in Uttar Pradesh, K. Rajarajan, S. Ganesh Kumar, and Sitanshu Sekhar Kar in 2016 in Puducherry, and Sandra Kiplagat, Makella S. Coudray in 2020 in Mysore.

Discussion

This systematic review aimed to assess the primary objective of evaluating the effectiveness of JSY implementation on the Maternal Mortality Ratio (MMR) in India. Additionally, it aimed to address secondary objectives, including the review of determinants influencing maternal health services utilization and an assessment of perceptions toward the benefits of the JSY scheme. The available evidence regarding the impact of JSY on maternal and infant mortality and morbidity outcomes was considered insufficient, with most studies lacking the necessary data to evaluate health-related impacts. While four studies suggested that JSY effectively increased institutional delivery, none reported a significant correlation between JSY implementation and a reduction in maternal mortality.

The majority of studies focused on states with lower performance compared to those with higher performance.

Literature evidence indicates that JSY is highly effective in promoting institutional delivery, but challenges exist, particularly in the disbursement of cash benefits—a significant motivator for utilizing JSY services. Issues such as extensive documentation for beneficiaries hindered the receipt of cash benefits. Streamlining procedures is crucial to improving service uptake among this demographic. Some studies highlighted that a lack of awareness about the JSY scheme led to underutilization of services, underscoring the need for targeted efforts to encourage women to opt for institutional delivery. Among the various services offered under JSY, transportation facilities were underutilized due to mothers' limited knowledge about all the benefits. Closing this knowledge gap necessitates providing comprehensive information about the JSY scheme through Accredited Social Health Activists (ASHA) and health workers.

Conclusion

The Indian government introduced the JSY scheme to promote institutional delivery. The evaluation indicates that while the program has considerable influence on the utilization of maternal health services, it has not significantly reduced Maternal Mortality Ratio (MMR) and Infant Mortality Rate (IMR). Despite significant governmental efforts, the anticipated increase in institutional delivery rates has not been realized. Various barriers, including social, geographical, cultural, and financial factors, limit the impact of JSY. The findings from this analysis offer valuable insights for the development and implementation of maternal health service delivery programs aimed at enhancing the health and well-being of both mothers and children. The evidence also highlights important considerations for future initiatives involving conditional cash assistance for maternal health.

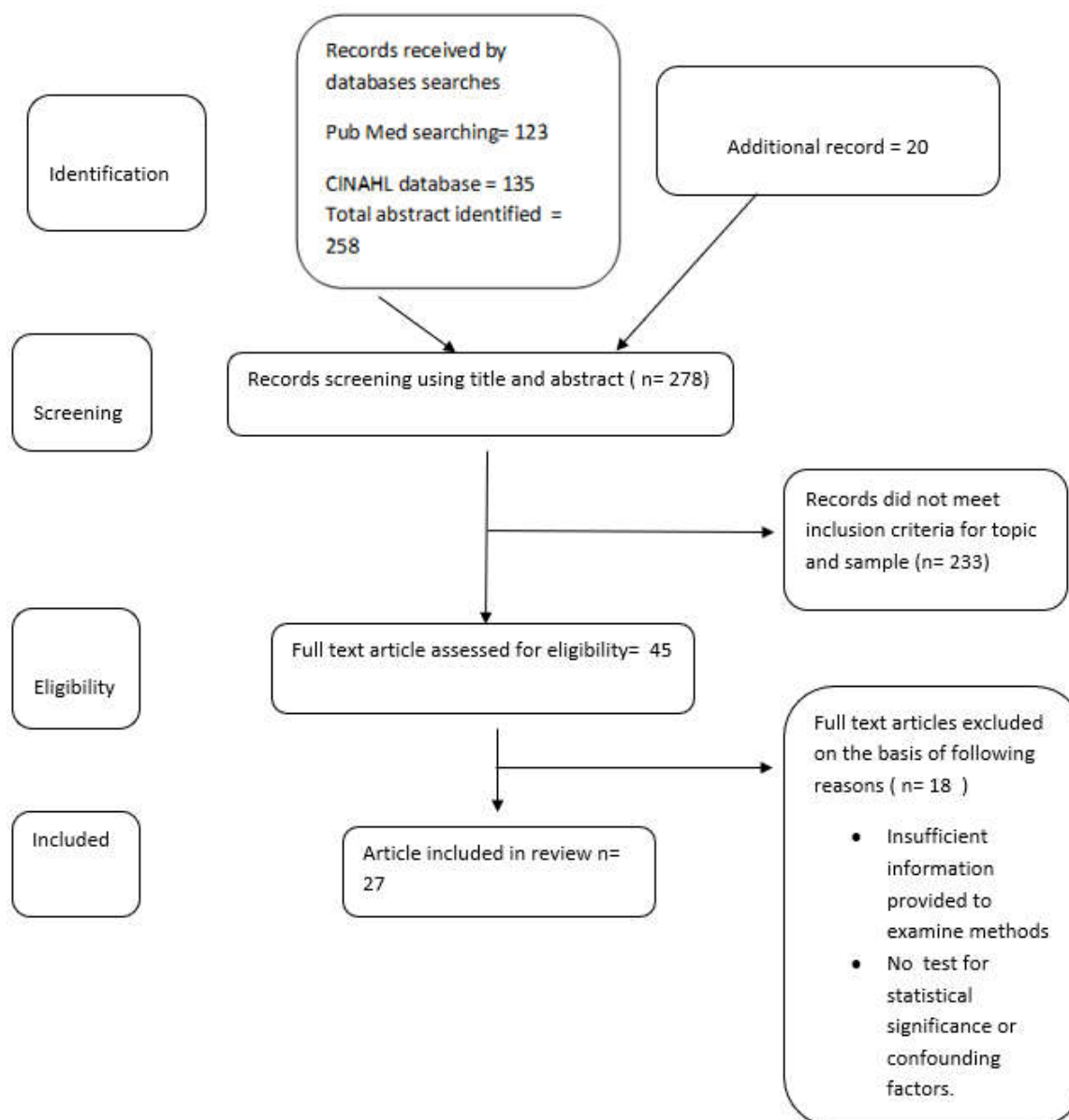
Strength of the study

This review was undertaken to consolidate evidence, evaluating the effectiveness of the JSY program beyond merely institutional deliveries. It aimed to encompass awareness, antenatal registrations, transportation facilities, antenatal and postnatal care, as well as the receipt of cash assistance. The objective was to comprehend the range of services provided and the quality of treatment within the public healthcare system. The intention was to highlight to policymakers the importance of ensuring access to healthcare services and delivering appropriate care to the economically disadvantaged.

Limitations of the study

This research was carried out in India, a nation characterized by diverse regions and cultural practices that could influence how mothers perceive and utilize J.S.Y services. Numerous studies examined in this review lacked a comparison group, posing challenges in accurately evaluating the actual impact of the scheme. The focus of this review was exclusively on the perception and utilization of J.S.Y services and their effects on India's Maternal Mortality Rate (MMR).

TABLES & FIGURES

Figure No. 1: Flow diagram of screening and selection of study**Table No. 1:** Characteristic and Summary of The Studies

S. No	Author Year of publication	Aim	Methodology					
			Design	Sample & sample size	Setting	Sampling Data collection methods	Approach	Data collection periods
1.	HiralaKnonar , Asit Baran Chakraborty et al. 2013	Estimate maternal mortality rate	Retrospective study	FOGSI institutional maternal data	All over state India	Not cleared.	Quantitative	January 2005 to December 2007
2.	Hanimi Reddy Manas R Pradhan et al. 2012	Estimates the India IMR/MMR, and predicts future level.	Prospective study	Maternal data from low performance state	All over in India	Standardized decomposition technique	Quantitative	1980 to 2009

				and high performance state in India				
3.	William Joe Suresh Sharma et al. 2015	Maternal Mortality in India.	Retrospective study	Maternal data from SRS and national health survey. methodology	All over in India.	pooled data..	Quantitative	2001 to 2012
4.	Marie Ng , Archana Misra et al. 2014	Impact of the JSY cash transfer program on maternal mortality reduction.	Retrospective study	SRS reports (1997–2008), Annual Health Survey – 2010, National Family Health surveys (1998, 2005), vital statistics (2001–2009) reports from the provincial Department of Health (2005–2010); , <i>UNICEF report</i>	Madhya Pradesh	Bayesian spatio-temporal model was used to estimate complete MMR series from 2005 to 2010.	Quantitative	2005 to 2010
5.	Ruma S. Anand, Reeta Singh et al. 2016	Impact of Janani Suraksha Yojana on institutional delivery rate, incidence of rupture uterus and fetal-maternal outcome related to uterine rupture.	Retrospective observational study	33 cases of rupture uterus which occurred before - implementation of JSY with 41 cases which occurred after implantation of JSY	RBD medical college Gorakhpur	Not cleared	Quantitative,	First pahse: January 2007 to December Second Phase : 2007 and Secondly Phase: July 2014 to June 2015
6.	Nattawut Thongkong, Swati Sarbani	Cash transfers for maternity care	Prospective study	3,682 postnatal mothers	Jharkhand and Odisha state, India	Linear probability models were	Quantitative	2009 to 2010.

	Roy et al. 2017					used to identify the		
7.	Dipta K. Mukhopadhyay, Sujishnu et.al 2017	Utilization of Janani Suraksha Yojana and its Association with Institutional Delivery	Cross sectional descriptive study	946 postnatal mothers	West bengal	Stratified random Sampling	Quantitative	July 2012 and May 2013
8.	Vikas Kumar, Sunil Kumar Misra et.al 2015	Utilization and perception among mothers and health care provide.	Descriptive cross sectional study	203 postnatal mothers	Agra district Uttar Pardesh.	Cluster random sampling to select the sample from 10 village.	Quantitative	July 2010 to June 2011
9.	Prem Lal Chauhan, Dinshwar Dhadwal, et al. 2020	knowledge, awareness, and utilization pattern of services under Janani Suraksha yojana.	Cross sectional study	78 JSY beneficiaries	Rural field practice area of Indira Gandhi Medical College Shimla, Himachal Pradesh	Interviewed with pretested, predesigned, semi-structured close ended questionnaire by house-to-house visits,	Quantitative	1 April 2012 to 31 March 2013.
10.	Ipsa Mohapatra, Sonali Kar et al. 2017	Assess the utilization of Janani Suraksha Yojana	Cross sectional study	193 postnatal mothers.	Urban Slum in Bhubaneswar and Odisha	Data collection technique was. Individual interview.	Quantitative.	during August 2013 to July 2014
11.	N. Ramakrishna Reddy, SG. Kishore et al. 2016	Assess the knowledge and utilization of Janani Suraksha Yojana	Cross sectional study	120 postnatal mothers	Bangalore Medical College and Research Institute.	Data collection technique Individual interview.	Quantitative	1 May 2015 to 30 June
12.	Rajarajan Kayaroganam, Ganesh Kumar Saya et al. 2017	Utilization of maternal health services among JananiSuraksha Yojana	Cross sectional study	144 postnatal mothers	Rural and urban a tertiary care institution in Puducherry, India	Data collection technique Interview methods	Quantitative	1 September 2013 to 31 august 2014
13.	Divya Sahu, Shanta P. Khes Beck et. Al 2019	Assess the utilization of janani suraksha yojana cash incentive	Cross sectional study	386 postnatal mothers	Department of community medicine, Pt. J.N.M. Medical College, Urban slum Raipur	Multistage random sampling. Predesigned and pretested questionnaire. Data collection technique was interview.	Quantitative	during july 2015 to june 2016
14.	Nanjunda D.C 2015	Assessment of janani suraksha yojana	Cross sectional study	123 JSY beneficiaries	Chamaraj nager, south karnataka.	Random survey in 3 PHC and 2 sub Center	Quantitative	2011
15.	Sachin Gupta, Prasad Pore 2019	Utilization of antenatal services by	Cross sectional observati	155 beneficiaries	Rural area of pune district of	Pretest questioner through	Quantitative	1st October 2014 to 30th

		JSY beneficiaries	onal study.		Maharashtra	interview methods.		September 2015
16.	K. Vikram, A. K. Sharma et al. 2013	Beneficiary level factors influencing <i>Janani Suraksha Yojana</i> .	Cross sectional community based survey	469 mothers interviewed	Urban slum population of trans-Yamuna area of Delhi	stratified random sampling	Quantitative	December 2009 to November 2010
17.	Parul Sharma, Jayanti Semwall, et al. 2010	Utilization of Janani Suraksha Yojana	Cross sectional study	227 postnatal mothers 88 women belonged to rural areas and 139 women were from urban slums	Rural Health Training Centre & Urban Health Training Centre of department of Community Medicine, HIMS, Dehradun.	Data collection technique was interview methods.	Quantitative	15May-08 to 14th May-09
18.	Madhumita Mukherjeea, Manas Pratim Roy 2019	Factors determining institutional delivery in Bihar,	National Family Health Survey 4 , retrospective study.	81 district.	Bihar, West Bengal, and Jharkhand,	Declaration of Helsinki.	Quantitative	2015–2016
19.	Sonu Goel, Deepak Sharma et al. 2017	Factors influencing Janani Suraksha Yojana utilization	Cross sectional	100 postnatal women from primary and secondary health care facility.	Chandigarh city.	Random sampling, data was collected by one to one in-depth open-ended interviews.	Mixed methods	August 2012 to March 2014
20.	Priyanka Joshi, Gomathi Mhaligum, et al. 2014	Assess the utilization and factors affecting utilization of MCH services among postnatal mothers.	Explorative descriptive study	196 postnatal mothers	Pauri district, Uttarakhand.	Seld structured questionier, consecutive sampling technique.	Quantitative	1 November to 31 December 2014
21.	Dipta K. Mukhopadhyay , Sujishnu et al. 2014	Utilization of Janani Suraksha Yojana and its association with institutional	Cross sectional descriptive study	946 women selected through	West Bengal, India	stratified random sampling	Quantitative	July 2012 and May 2013
22.	Jaya Srivastava, Alex Joseph et al. 2016	Why institutional deliveries are low.	Cross sectional study	200 postnatal mothers.	Rural Balrampur district,	Multistage random sampling	mixed methods	2016 to 2017

					Uttar Pradesh			
23.	Sukumar Vellakkal, Hanimi Reddy 2017	Factors impacting accessing of institutional delivery care in the context of cash incentive program	Cross sectional study	122 beneficiaries and non beneficiary and ASHA workers.	Jharkhand, Madhya Pradesh and Uttar Pradesh	Stratified purposive and Individual face-to-face in-depth interviews.	Qualitative	September to November 2013
24.	K. Rajarajan ¹ , S. Ganesh Kumar, et al. 2016	Proportion of beneficiaries and factors affecting Janani Suraksha Yojana direct cash transfer	Cross sectional study	152 JSY beneficiaries	Tertiary care institution in Puducherry, India	Pretested semi structured questionnaire, house-to-house survey.	Quantitative	January to March 2015 among 152
25.	Sandra Kiplaga ¹ et al. 2020	Evaluating a Conditional Cash Transfer Scheme in a Maternal Health Care Utilization Program	Prospective cohort study	1,806 mothers	Rural Pregnant Women in Mysore District, India	interviewer-administered questionnaire	Quantitative.	2011 and 2014,
26.	Soumendu Sen, Sayantani Chatterjee et.al. 2020	2020 National family health survey on unintended effects of janani suraksha yojana on maternal care in india.	Cross sectional	148,746 from LPS and HPS.	All over state of India	Interview administered questionnaire	Quantitative	2015 to 2016
27.	Sanjeev K Gupta, Dinesh K Pal, Rajesh Tiwari 2012	2012 Janani Suraksha Yojana on institutional delivery rate and maternal morbidity and mortality	Prospective study	Not mentioned.	Madhya Pradesh	Observational study.	Quantitation	2003 - 2005 compared to 2005-2007

Table No. 2. : Effectiveness of JSY scheme on MMR.

S. No	Author name & year	Aim	Duration of study	Comparison	Related outcome	Causes of MMR
1.	Hirala Knonar, Asit Baran Chakraborty et al. 2013	Estimate maternal mortality rate in India.	January 2005 to December 2007	Variation of MMR in India five zones West 342, South 229, East 709, North East 709 and North 814.	Significant difference in MMR after implementing JSY scheme for the whole country as well as for the south zone with or without inclusion of Kerala.	leading causes of deaths were determined as hypertension (29.4 %), hemorrhage (21.56 %), sepsis (15.05 %), and medical disorders (12 %).
2.	Hanimi Reddy Manas R Pradhan et al. 2012	Progress towards the millennium development goal 4 and 5 of MMR in India.	1980 to 2009	Deliveries attended by skilled health personnel, with an improvement from 33% in 1992–1993 to 76% by 2009.	Maximum decline in MMR during 2004–2009 coincided with the launch and uptake of the National Rural Health Mission. SRS does not provide smaller estimation of 15 state which cover approximate 95% population	Not mentioned
3.	William Joe Suresh Sharma et al. , 2015	Maternal Mortality in India	2001 to 2012	MMR declined by 50 points from 301 in 2001–03 to 254 in 2004–06, by 42 points between 2004–06 and 2007–09, by 34 points between 2007–09 and 2010–12, pre-NRHM (2004–06) and NRHM (2010–12) periods-mostly, the decline in the NRHM period has been significant over EAG states.	MMR reduction 99 % at the all state in India. Statistically, reduction in MMR is significant only for Uttar Pradesh/Uttarakhand. EAG states also considered as a high focus state here. $p < .01$, $p < .05$, $p < .10$ represents significance of difference at 1%, 5% and 10%, respectively. This ecological association suggests that economic growth at lower levels of income can have significant impact in achieving faster decline in MMR.	Not mentioned
4.	Marie Ng, Archana Misra, 2014	Impact of the JSY cash transfer program on maternal mortality reduction in Madhya Pradesh.	2005 to 2010	MMR declines in the districts varied from 2 to 35% over this period.	Increase in JSY-supported institutional delivery, but there was no significant association between JSY-supported delivery proportions and changes in MMR	Not mentioned

5.	Ruma S. Anand, Reeta Singh, 2016	Impact of Janani Suraksha Yojana on institutional delivery rate, incidence of rupture uterus and foeto-maternal outcome related to uterine rupture	Primary from January 2007 to December 2007 and secondly from July 2014 to June 2015	25% proportional increase in the institutional deliveries, significant decrease in the incidence of rupture uterus ($Z=2.5963$, $p<0.05$ and maternal mortality (Chisquare at 1 $df=4.326$, $P<0.05$)	JSY has increased the proportion of institutional deliveries decreased the incidence of rupture uterus and decreased maternal mortality rate. 33 patients in group 1, we saved 25 (75.75%). While in group 2, out of 41 patients, 39 (95.12%). This shows a significant decrease in maternal mortality after JSY implementation.	Not mentioned
6.	6.	Sanjeev . K gupta et al. 2012	Impact of Janani Suraksha Yojana on institutional delivery rate and maternal morbidity and mortality in India	Between 2003-2005 and 2005-2007 before and after JSY implementation.	institutional deliveries increased by 42.6% after implementation	Not mentioned

Table No. 3: Effectiveness of JSY for the utilization of maternal health services in term of cash benefits.

S. No	Studies	Aim	Maternal age	Institutional Delivery	Awareness of JSY scheme	Registration Under JSY services	Transport facility	Antenatal and postnatal care	Receipt of financial assistant under
1	Nattawut Thongkoning et al. 2017	How equitable is the uptake of conditional cash transfers for maternity care in Odisha and Jharkhand during 2009 to 2010.	Not mentioned	All sample	Not found	Not found	Not found	Not found	94% in Odisha, 85% in Jharkhand received cash.
2	Dipta K. et al. 2017	Utilization of janani suraksha yojana and its association with Institutional delivery in the State of West Bengal, April 2012 to June 2012	Not mentioned	78.8% institutional delivery,	Not found	Not found	Not found	Not found	64.5% had received cash

3	Vikas Kumar, et al., 2015	Utilization and perception among mothers and health care providers in Agra district of Uttar Pradesh during July 2010 to June 2011	Not mentioned	53.25% delivered in public health sectors.	65.87% aware about JSY services.	Not found	48.09% get transport from hospital rest 51.91 by own self.	48% ANC and PNC services were received from ASHA workers.	44% of had received cash.
4	Prem Lal Chauhan et al. 2020	knowledge, awareness, and utilization pattern of services under Janani Suraksha Yojana among beneficiaries in rural area of Himachal Pradesh during 1 april 2012 to 31 march 2013.	64% mothers age group between 20-25.	Not found	55.1 % mothers aware about JSY services, main source of information 78% anganwadi workers 79.5% female health workers.	53.85% early in first trimester registered	Not found	56.4% had undergone 3 antenatal visit. and only (14.1%) of them received 3 postnatal visits.	All the beneficiaries received the JSY incentives one week the following delivery.
5	S. Devgan, et al. 2020	Evaluation of Janani Suraksha Yojana among Antenatal and Postnatal Registered Women in Field Practice Area of GGSMC, Faridkot sample during 2013 to 2014.	87% of subject were in the age group of 19-27	55% primipara mothers and 32% second birth mothers delivered	53% had knowledge regarding criterion for beneficiaries of JSY	Not found	74% of the beneficiaries had arranged the transportation on their own cost, while in 26% transportation was arranged either by the ASHAs or health workers.	Not found	85% had received the money through cheques. proportion of institutional delivery was significantly higher for beneficiaries ($P < 0.00001$)
6	Ipsa Mohapatra et al. 2017	Utilisation of Janani Suraksha Yojana Services in Bhubaneswar, Odisha during august 2013 to 7july 2014.	75.13% in age-group of 20-29 years	91% of whom delivered institutions.	96.37% women had awareness about JSY services, where 85.49% informant from	75- 85% of women registered early, Rest their last trimester, out of those 15%	81.5% beneficiaries had made arrangement for transportation to health facility at their own	97 % women utilized ANC, 73.57% of women had their postnatal checkup, only 11.9	Not found

					ASHA and 79.79% were informant by anganwadi workers.	were multipara, expecting their second or third child.	cost, 18.54% received provision of transport facilities	% women complete their three visit.	
7	N. Ramakrishna Reddy et al. 2016	Assess the knowledge and utilization of Janani Suraksha Yojana in Bangalore among during 1 may 2015 to 30 june	Not mentioned.	Not found	78.3% were aware of JSY scheme among out of those 63.3% came to know through the local ANM	Not found	Not found	76.7% had attended ≥ 4 ANC visits.	82.9% had received cash assistance under JSY.
8	Rajarajan Kayaroganam et al. 2017	Utilization of maternal health services among Janani Suraksha Yojana beneficiaries in Puducherry during 1 September 2013 to 31 august 2014	54.9% of age group between 19-25	98.6% had institutional delivery	Not found	82.6% of subjects were registered in the first trimester.	Not found	98.6% had more than three ANC visits, postnatal visit by health worker was 54.2%. 48.6% had minimum one postnatal visit. Most 77.8% consumed 100 iron and folic acid tablets	Not found
9	Divya Sahu, Shanta P. Khes Beck 2019	Assess receipt and utilization of janani suraksha yojana cash incentive among mothers in urban slums of Raipur city, Chhattisgarh, during	Not mentioned	Not found	98.70% mothers aware about JSY services.	Not found	Not found	Not Found	70.83% subjects were received cheque of JSY cash incentive.

		july 2015 to june 2016.							
10	Nanjunda D.C 2015	Assessment of janni suraksha yojana in chamarajana gar district of south Karnataka among in 2011	Mean age of the women was 24.	Not found	Not found	78.8% women registered in JSY.	Not found	54.4 % women done antenatal checkup.	55.5% women said that cash benefits were most important factors for institutional delivery.
11	Sachin Gupta1 2019	Utilization of antenatal services by JSY beneficiaries in rural area of pune district of maharashtra during 1st October 2014 to 30th September 2015	Mean age of women was 23.38 years	99.6 institutional delivery.	Not found	50.3% registered within 12 weeks	58.7% beneficiaries reached by private transportation and 40.7% used government facilities to reach hospital.	93.5% had done 3 ANC visits. 41.94% had done their all ANC examination	50.3% get cash benefits.
	K. Vikram et al. 2013	Factors influencing Janani Suraksha Yojana utilization in urban slum population of trans-Yamuna area of Delhi during december 2009 to november 2010 in 46 district in east and north.	Median age of the mothers was 25 yr	Institutional delivery rate was 71%, where 52.5% women had delivered in Government Institutions	62.3% were aware about JSY services, 68% came to know about JSY during the antenatal period	Not mentioned	Not found	92% of the women had received minimum three antenatal visits.	27.3% had benefited from JSY scheme where 14.5% had received cash benefits of JSY.
12	Parul Sharma, Jayanti Semwall et al. 2010	Utilization of Janani Suraksha Yojana in rural areas and urban slums, Deharadun, Uttarakhand. 15May-08 to 14th May-09	Not mentioned.	Not found	Not found	78.42% were registered in health institute. 21.58% women were not registered at the health facility.	Not found	29.21% women went for three or more ANC visits, 48.31% women consumed hundred IFA tablets.	44.93% received incentive after a month of delivery. Only 9.7% had received incentive at the time of discharge.

13	Madhumita Mukherjee, et al. 2019	Survey on Factors determining institutional delivery in Bihar, Jharkhand and west Bengal among total 81 district	Not mentioned.	75.2% in West Bengal, 63.8% in Bihar, and 61.9% in Jharkhand.	56.2 % of mothers had awareness about JSY services.	54.9% women registered under JSY.	Not found	Four or more ANC visits were availed by 1/3 of the beneficiaries,	Not found
14	Sonu Goel, et al 2016	Factors influencing Janani Suraksha Yojana utilization in Chandigarh during August 2012 to March 2014.	The mean age of the mothers was 22.7 years	94 % delivered in institution. 80% delivered in government institution and 14 % in private institutions	42% knew about safe institutional delivery	84 % women registered under JSY.	Not Found	OR= 17.4, which signifies the fact that increased ANC visits was related to increased odds of availing JSY benefit	34 %women had received JSY
15	Priyanka Joshi, Gomathi Mahaligum 2014	Assess the utilization and factors affecting utilization of MCH services among postnatal mothers in selected hilly areas of Pauri District, Uttarakhand.	50.9% mother age group between 21 to 25.	Institutional delivery 81.6%.	Not found	77% mothers registered under JSY .	Not found	74.5 % ANC visits.	82.7% mothers had received cash benefits,

SECTION: D

Table No. 1.4: Factors influencing utilization of JSY services among beneficiary.

S.No	Outcome assess	No of article	Evidence
1.	Maternal Education	5	<p>Nanjunda D.C, 2015, stated that 15% and 16 % women said that fear of delivery procedure by equipment and lack of knowledge about institutional delivery was the reason preferring home delivery.</p> <p>Jaya Srivastava, Alex Joseph, 2016, indicate that lack of awareness and more cultural beliefs was the reason not utilized JSY services.</p> <p>Vikas Kumar, Sunil Kumar Mishra, 2015, indicated that only 27.6% women aware about JSY benefits., from ASHA rest were not aware about JSY benefits.</p>

			Priyanka Joshi, Gomathi mahalingam ,2015, More than half 58.2 % mothers having lack of knowledge about JSY scheme, specially about free transport facility.
2.	Socio economical status	1	Jaya Srivastava, Alex Joseph, 2016, stated that due to financial problems, not reached hospital for visiting .
3.	Distance from health facilities	3	Dipta K. Mukhopadhyay , Sujishnu 2017, indicated that stated that 74.8% JSY eligible mothers and 81.8% Non eligible mothers mothers said that due to long distance from health facility less utilization of complete JSY services. Priyanka Joshi, Gomathi mahalingam ,2015, indicated that maternal Believe (Better services in home, $p=0.02$), Distance from health facility (unavailability of transport, $p=0.02$) and Availability of doctors (doctors are not available, $p=0.04$ influencing utilization of services. Sukumar Vellakkal, Hanimi Reddy 2017, revealed that leading to delay/non-availability of transportation.
4.	Receipt of financial assistant under JSY	4	Divya Sahu¹, Shanta P. Khes Beck 2019, stated that mothers were unaware of cash incentive, did not go back to get the cheque when called later, 22.79% of study subjects due to complex procedure to open an account in bank Sonu Goel¹,Deepak Sharma, 2018, Due to certain technical issues in linking AADHAR to JSY payment system, the funds could not be disbursed on time. Jaya Srivastava, Alex Joseph, 2016, Delayed payment, problem in arranging for a residence proof and lot of administrative paper work. K. Rajarajan¹, S. Ganesh Kumar², Sitanshu Sekhar Kar 2016, mean time of receiving the benefit is 95.8 days. More than half (54.16 %) had not received cash benefits out of those about 62.8% had not applied and 37.18% filled applications were rejected due to various reasons. Half (52.1%)of still preferred direct bank transfer through the bank. The reasons for not availing benefits includes not having a bank account 24.3%, followed by not having Aadhaar number 9.7%, 11.8% had no ration card, and 13.8% stayed in their mother house. Sandra Kiplagat, Makella S. Coudray, 2020, stated that 20% of the women faced problems in obtaining BPL certificate of documentation for JSY benefits. nearly half (46.6%) of those who earned $\leq 4,000$ INR failed to receive JSY benefits highlighting

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