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Evaluating the Policy Impact of the Pradhan Mantri Matru Vandana Yojana (PMMVY) on Maternal Health and Economic Well-Being in the Context of the Sustainable Development Goals (SDGs)

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Abstract

The Pradhan Mantri Matru Vandana Yojana (PMMVY) is India's flagship maternity benefit programme, designed to reduce poverty, improve maternal health, and advance gender equality among economically vulnerable women, particularly in rural areas. This study evaluated PMMVY's effectiveness in enhancing maternal healthcare access and economic security among rural women in Sivagangai District, Tamil Nadu, India, and assessed its alignment with Sustainable Development Goals (SDGs) 1, 3, and 5. A mixed-methods, descriptive cross-sectional design was used, surveying 100 PMMVY beneficiaries across five taluks of Sivagangai District and conducting in-depth interviews with 15 frontline health workers and a purposively selected subsample of 10 beneficiaries. Only 28% (28/100) of surveyed women received the full monetary benefit of INR 5000 across all three installments. While institutional delivery rates (91/100, 91%) and antenatal care attendance (84/100, 84%, four or more visits) were high, major barriers included delayed fund disbursement (71/100, 71%), cumbersome documentation requirements (63/100, 63%), and limited autonomy over fund utilization (52/100, 52%). Additional challenges included low awareness of installment conditions, exclusion of higher-parity pregnancies, and digital access barriers. PMMVY positively influenced maternal health-seeking behavior, but its overall impact was constrained by systemic delays, restrictive eligibility criteria, and gender-based disparities in resource control. Targeted policy reforms focusing on community outreach, streamlined disbursement, and women's financial autonomy are needed to realize PMMVY's full potential.

1. Introduction

Maternal health and economic security remain intertwined challenges in developing nations, particularly in marginalized rural communities. In India, despite significant improvements in healthcare infrastructure over the past two decades, maternal mortality rates continue to disproportionately affect women from lower socioeconomic strata. According to the World Health Organization (WHO), global maternal mortality remains concentrated in low- and middle-income countries, with approximately 287,000 maternal deaths recorded in 2020 alone, over 70% of which occurred in sub-Saharan Africa and South Asia [1]. Conditional cash transfer (CCT) programs have emerged globally as a promising strategy for simultaneously addressing economic vulnerability and health-seeking behavior among pregnant and lactating women [2].

The Pradhan Mantri Matru Vandana Yojana (PMMVY), launched in 2017 under the National Food Security Act (NFSA), is India's most comprehensive maternity benefit program. It provides a direct benefit transfer (DBT) of INR 5,000 in three installments to eligible pregnant and lactating women for their first live birth, contingent upon fulfilling specific antenatal care (ANC) conditions [3]. The program aims to partially compensate for wage loss during pregnancy and lactation, improve maternal nutrition, and encourage institutional deliveries, directly aligning with the Sustainable Development Goals (SDGs), specifically SDG 1 (No Poverty), SDG 3 (Good Health and Well-Being), and SDG 5 (Gender Equality) [4].

Despite its wide reach, the PMMVY has faced considerable implementation challenges across various states. Tamil Nadu, which has a relatively robust public health infrastructure, offers a unique context for evaluating how a centrally designed program interfaces with state-level health systems. The Sivagangai district, characterized by a predominantly rural population with moderate literacy levels and entrenched gender inequalities, provides an important lens through which to assess program performance at the grassroots level [5]. National evaluations of PMMVY have revealed persistent gaps in fund disbursement, beneficiary awareness, and documentation compliance [6]. However, many studies conducted at the district level examine health system capability and use of policies by healthcare providers in a detailed manner. This study addresses this gap by examining the policy impact of the PMMVY on maternal health outcomes and economic well-being in Sivagangai, while situating these findings within the broader SDG framework.

Specifically, this study sought to answer the following research question: to what extent does enrolment in PMMVY improve maternal healthcare access and economic security among rural beneficiaries in Sivagangai District, and what systemic and gender-based factors constrain the realization of its full intended benefits?

The primary objective of this study was to evaluate the effectiveness of PMMVY in improving maternal healthcare access and economic security among beneficiaries in the Sivagangai District. The secondary objectives include identifying systemic barriers to full benefit utilization, assessing women's autonomy in fund utilization, and analyzing the program's alignment with and contribution to SDG targets.

2. Materials and Methods

2.1. Study Design and Setting

A mixed-methods descriptive cross-sectional design was used to assess the PMMVY's impact on maternal health and economic well-being. The study was conducted in Sivagangai district, Tamil Nadu, India, encompassing five taluks: Sivagangai, Manamadurai, Tirupuvanam, Devakottai, and Ilayangudi. Sivagangai was selected because of its predominantly rural character, moderate healthcare infrastructure, and moderate female literacy rate (71.85%), which renders it representative of semi-rural conditions across southern India [5].

2.2. Participants and Sampling

The study population comprised women who enrolled in and received at least one instalment of PMMVY benefits between April and May 2025. Purposive sampling was used to recruit 100 beneficiaries, with 20 participants selected from each taluk using health worker-assisted identification through Anganwadi and sub-centre registers. The inclusion criteria required participants to be 18–45 years of age, residents of the Sivagangai district, and registered as PMMVY beneficiaries. Women with significant cognitive impairment or language barriers were excluded.

In addition, 15 frontline health workers comprising Accredited Social Health Activists (ASHAs), Anganwadi Workers (AWWs), and Primary Health Centre (PHC) nurses were recruited for in-depth qualitative interviews using maximum variation sampling to capture diverse implementation experiences of the program.

2.3. Data Collection

Quantitative data were collected through structured, interviewer-administered questionnaires adapted from validated instruments used in prior CCT program evaluations in India [7]. The questionnaire captured sociodemographic characteristics, PMMVY enrolment and installment receipt, antenatal care attendance, institutional delivery rates, nutritional practices, awareness of program conditions, and self-reported fund utilization autonomy. All questionnaires were administered in Tamil by trained investigators. The full questionnaire is provided in Appendix A.

Qualitative data were obtained through semi-structured in-depth interviews with 15 health workers and a purposively selected sub-sample of 10 beneficiaries representing varied benefit-receipt experiences. The interview guides explored themes of program awareness, implementation barriers, inter-agency coordination, and gender dynamics in benefit utilization. All interviews were audio-recorded with informed consent, transcribed verbatim, and translated into English for analysis purposes.

2.4. Outcome Measures

The primary outcomes included (i) the proportion of beneficiaries receiving the full INR 5,000 benefit across all three installments, (ii) institutional delivery rates, (iii) antenatal care visit compliance, and (iv) self-reported nutritional improvement. The secondary outcomes encompassed beneficiary awareness of PMMVY conditions, perceived autonomy in fund utilization, and barriers to benefit receipt.

2.5. Data Analysis

Quantitative data were entered into Microsoft Excel and analyzed using SPSS version 25.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed. Chi-square tests were applied to assess associations between sociodemographic variables and benefit utilization outcomes, with statistical significance set at $p < 0.05$. Qualitative data were analyzed using thematic analysis following Braun and Clarke's six-phase framework [8], with themes coded inductively from interview transcripts and refined through iterative discussions among the research team.

3. Results

3.1. Sociodemographic Profile and Benefit Receipt

Of the 100 PMMVY beneficiaries surveyed, the majority (72/100, 72%) were between 18 and 30 years of age (mean age: 24.8 ± 3.6 years) (Table 1). A significant proportion (68/100, 68%) had completed secondary school education, and 14% (14/100) were

illiterate. Most respondents (79/100, 79%) were housewives with no independent income sources. Scheduled Caste and Scheduled Tribe (SC/ST) beneficiaries constituted 47% (47/100) of the sample, reflecting the program's reach among marginalized communities. All participants were enrolled for their first live birth, consistent with PMMVY eligibility criteria.

Characteristic	Category	n (%)	Mean ± SD
Age (years)	18–24	43 (43%)	24.8 ± 3.6
	25–30	29 (29%)	
	31–45	28 (28%)	
Education	Illiterate	14 (14%)	
	Primary	18 (18%)	
	Secondary	68 (68%)	
Occupation	Housewife	79 (79%)	
	Agricultural labor	15 (15%)	
	Other	6 (6%)	
Social Category	SC/ST	47 (47%)	
	OBC	35 (35%)	
	General	18 (18%)	

Table 1. Sociodemographic profile of PMMVY beneficiaries (N = 100).

Only 28% (28/100) of the surveyed beneficiaries reported receiving all three installments of PMMVY benefits, constituting the full INR 5,000 entitlement (Table 2). A further 41% (41/100) received two installments (INR 3,000), while 22% (22/100) received only the first installment (INR 1,000). Notably, 9% (9/100) of participants reported receiving no benefits despite enrolment, primarily due to documentation deficiencies or banking errors. The median delay in the first installment disbursement was 87 days from the date of enrolment.

Installments Received	Amount (INR)	n (%)	Median Delay (days)
All three installments	5,000	28 (28%)	87
Two installments	3,000	41 (41%)	94
One installment only	1,000	22 (22%)	112
No installment received	0	9 (9%)	N/A

Table 2. PMMVY benefit receipt and installment disbursement (N = 100).

3.2. Maternal Health Outcomes

Despite incomplete benefit receipt, high rates of institutional delivery (91/100, 91%) and antenatal care attendance (84/100, 84%, completed at least four ANC visits) were recorded overall (Table 3). However, the link between benefit receipt and health-seeking behavior is not straightforward. Among those who received no benefit, institutional delivery rates remained relatively high (7/9, 78%), suggesting that Tamil Nadu's broader health system infrastructure and complementary incentive programs, such as the Janani Suraksha Yojana (JSY), may also be driving these outcomes. Self-reported improvement in dietary intake during pregnancy was significantly higher among full-benefit recipients (23/28, 82%) than among partial recipients (34/63, 54%) and non-recipients (3/9, 33%), as determined by a chi-square test of association ($\chi^2 = 18.4$, $df = 2$, $p < 0.001$).

Outcome	Full Receipt (n = 28)	Partial Receipt (n = 63)	No Receipt (n = 9)
Institutional delivery	96% (27/28)	91% (57/63)	78% (7/9)
≥4 ANC visits	93% (26/28)	83% (52/63)	56% (5/9)
Improved dietary intake	82% (23/28)	54% (34/63)	33% (3/9)
Iron/folic acid supplement use	89% (25/28)	74% (47/63)	44% (4/9)

Table 3. Maternal health outcomes by PMMVY benefit-receipt status.

3.3. Barriers to Full Benefit Utilization

Table 4 summarizes the principal barriers reported by beneficiaries to full benefit utilization. Documentation complexity was the most frequently cited challenge: 63% (63/100) of beneficiaries reported difficulty obtaining required documents, including Aadhaar card linkage, bank account proof, and the Mother and Child Protection (MCP) card. Delayed disbursement affected 71% (71/100) of participants, who experienced delays beyond four weeks for at least one installment, with a median delay of 87 days for the first installment. Digital and banking access barriers were also substantial: at enrolment, 38% (38/100) of participants lacked individual bank accounts and relied on their husbands' or family members' accounts. Awareness of program requirements was limited, with only 44% (44/100) of beneficiaries able to correctly identify all three installment conditions. Finally, restricted fund autonomy was reported by 52% (52/100) of beneficiaries, who indicated that benefit funds were predominantly managed by their spouses or in-laws, with limited self-directed expenditure on maternal nutrition.

Barrier	n (%)	Qualitative Theme
Documentation complexity (Aadhaar linkage, bank proof, MCP card)	63 (63%)	Enrolment burden
Delayed disbursement (>4 weeks for ≥1 installment)	71 (71%)	System inefficiency
No individual bank account at enrolment	38 (38%)	Financial exclusion
Cannot identify all 3 installment conditions	56 (56%)	Awareness gap
Funds managed by spouse or in-laws	52 (52%)	Gender disparity

Table 4. Barriers to full PMMVY benefit utilization (N = 100).

3.4. Gender Dimensions and Women's Empowerment

Qualitative interviews with healthcare workers and beneficiaries consistently highlighted gender-based barriers to benefit utilization. Many women reported that cash transfers were received into accounts effectively controlled by male household members, undermining the intended impact on maternal nutrition. Additionally, one-third of beneficiaries were unaware of the three-instalment structure and the specific behavioral conditions attached to each instalment, suggesting gaps in frontline communication and counseling services. Health workers noted that ASHA workers, who are predominantly female, face time and resource constraints that limit their capacity for comprehensive beneficiary counseling and care.

4. Discussion

This study provides evidence that the PMMVY has made meaningful contributions to maternal health-seeking behavior in the Sivagangai District, particularly regarding institutional delivery uptake and antenatal care attendance. These findings are broadly consistent with national and international evaluations of CCT programs, demonstrating improved utilization of health services following the introduction of financial incentives [2, 6, 7]. However, the low rate of full benefit receipt (28/100, 28%) raises critical concerns regarding program design and implementation effectiveness.

The documentation burden identified in this study mirrors the findings from prior national-level assessments of PMMVY, which have highlighted Aadhaar linkage, bank account requirements, and MCP card maintenance as significant enrolment barriers, particularly for women with limited literacy and digital access [9]. The median disbursement delay of 87 days for the first

installment is particularly concerning, as financial support during the early months of pregnancy is intended to compensate for wage loss and improve first-trimester nutrition, a period critical to fetal development [10].

The finding that 52% (52/100) of beneficiaries reported limited personal control over benefit funds is consistent with the broader literature on cash transfer programs in patriarchal social contexts, where intra-household bargaining dynamics can redirect benefits away from their intended beneficiaries [11]. This is particularly relevant in the context of SDG 5, which targets gender equality and the empowerment of all women and girls. Ensuring that women are the sole account holders and primary decision-makers regarding fund utilization is essential for the PMMVY to realize its stated gender equality objectives.

PMMVY's restriction to the first live birth, while administratively pragmatic, creates significant equity concerns. Women with two or more children, who may be among the most economically vulnerable, are systematically excluded from the program's benefits. This design feature limits the program's reach toward SDG 1 (No Poverty) and SDG 3 (Good Health), as high-parity pregnancies are associated with elevated maternal and neonatal risks, particularly among rural populations [12].

The relatively high institutional delivery rates among non-recipients (7/9, 78%) suggest that PMMVY alone is not the primary driver of institutional deliveries in the study area, and that complementary programs such as JSY and Tamil Nadu's Dr. Muthulakshmi Reddy Maternity Benefit Scheme also play substantial roles [13, 14]. This underscores the importance of policy coherence and inter-program coordination in strengthening maternal health systems. Future research should employ rigorous counterfactual designs to disentangle the PMMVY's specific contribution from the broader program environment.

The study's findings have direct implications for the SDG monitoring framework. PMMVY's alignment with SDG 1 is undermined by incomplete fund disbursement and restricted eligibility; its contribution to SDG 3 is diluted by documentation barriers that prevent the most marginalized women from completing the installment cycle; and its progress toward SDG 5 is constrained by intra-household gender dynamics that limit women's autonomous use of benefit transfers. Table 5 summarizes these findings against the specific SDG targets and indicators they bear on. Addressing these gaps through targeted policy reforms is essential for the program to serve as an effective vehicle for SDG achievement.

Table 5
Mapping of study findings to specific SDG targets.

SDG Target	Related Study Finding	Direction of Effect
SDG 1.3 – Implement nationally appropriate social protection systems	28% full-benefit receipt; 87-day median disbursement delay	Undermined by delivery-channel weaknesses
SDG 3.1 – Reduce maternal mortality	91% institutional delivery; 84% ≥4 ANC visits overall	Positive, but confounded by concurrent JSY/state schemes
SDG 3.2 – End preventable newborn/child deaths	Exclusion of second and higher-parity pregnancies from eligibility	Undermined by first-birth-only eligibility restriction
SDG 5.a / 5.b – Give women rights to economic resources; enhance use of technology to promote women's empowerment	52% report funds managed by spouse/in-laws; 38% lacked an individual bank account at enrolment	Undermined by limited fund autonomy and digital/financial exclusion

This study has several limitations. The cross-sectional design precludes causal inference regarding the relationship between PMMVY benefit receipt and maternal health outcomes, and the observed associations may be influenced by unmeasured confounders such as concurrent participation in other maternal health schemes. The reliance on purposive rather than random sampling, while appropriate for capturing diverse implementation experiences, limits the generalizability of findings beyond Sivagangai District. Self-reported measures of dietary intake, fund autonomy, and awareness are subject to recall and social desirability bias, particularly given that funds and decision-making were sensitive topics within household contexts. The sample size, while adequate for descriptive analysis, restricts the ability to conduct more granular subgroup or multivariate analyses controlling for confounding sociodemographic variables. Finally, the study's cross-sectional timing captured only a single snapshot of benefit disbursement status, and longer-term follow-up would be needed to assess whether delayed installments were eventually received in full.

5. Conclusions

PMMVY represents a significant policy commitment to improving maternal health and economic security among vulnerable women in India. The program has influenced health-seeking behavior, with high rates of institutional delivery and antenatal care uptake observed among beneficiaries in the Sivagangai district. However, its full potential is constrained by systemic implementation barriers, including documentation complexity, delayed disbursements, inadequate awareness campaigns, restrictive eligibility criteria, and gender-based disparities in fund control.

Several policy directions emerge from these findings that could strengthen PMMVY's contribution to SDGs 1, 3, and 5. Simplifying the enrolment process through single-window digital onboarding and pre-populated forms, alongside dedicated support for women with limited smartphone access or literacy, could reduce the documentation burden that currently excludes many eligible women. Extending benefit eligibility to second and subsequent pregnancies would help ensure that high-parity, high-risk women, particularly those from SC/ST and economically disadvantaged households, are not systematically excluded. Establishing mandatory processing timelines with clear accountability mechanisms could meaningfully reduce disbursement delays. Mandating individual bank accounts in women's names as the sole disbursement channel, paired with financial literacy support integrated into ASHA counseling, would directly address the gender disparities in fund control identified in this study. Finally, community-based awareness campaigns involving self-help groups and local women's organizations could help close the persistent gaps in beneficiary understanding of eligibility and installment conditions.

Future research employing longitudinal and quasi-experimental designs would help establish clearer causal relationships between PMMVY benefit receipt and maternal and child health outcomes, and would allow for a more systematic assessment of the program's contribution to SDG indicator achievement across diverse state-level implementation contexts.

Declarations

Supplementary Materials

The structured questionnaire used for data collection is provided as Appendix A.

Ethics approval and consent to participate

This study was reviewed by the Institutional Ethics Committee, Alagappa University, Karaikudi – 630003, Tamil Nadu, India, which granted an exemption from full IEC review (Certificate of Ethical Exemption, dated 22 September 2026) on the grounds that the study was a non-interventional, survey-based social science investigation. The exemption certificate was obtained after data collection (April–May 2025). The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants were adult women (18 years of age or older) with the capacity to consent. Before enrolment, the investigator explained the purpose, procedures, voluntary nature of participation, confidentiality, and right to withdraw in Tamil, and written informed consent was obtained from every participant. Literate participants signed the consent form. The 14 participants (14%) who were illiterate gave their own informed consent by thumb impression after the consent form was read aloud and explained to them verbally in Tamil. Consent from a legal guardian or legally authorized representative was not sought, as these participants were competent adult women and no guardianship arrangement applied to any of them. Participants separately indicated whether they agreed to audio recording of the interviews. Standard ethical safeguards for survey-based research, including voluntary participation and confidentiality of respondent data, were followed throughout.

Conflicts of Interest

The authors declare no conflicts of interest. The ICSSR had no role in the design of the study; in the collection, analysis, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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Author Contribution

GS, RP and PV conceived and designed the study. GS and PV developed the methodology and conducted the formal analysis and investigation. GS prepared the original draft. GS, RP and PV reviewed and edited the manuscript. RP supervised the project. All authors read and approved the final manuscript.

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Data Availability

The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request. The data are not publicly available due to privacy and confidentiality considerations relating to the study participants.

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