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MATERNAL HEALTH AND TIME POVERTY: HOW WOMEN'S DUAL ROLES AFFECT PRENATAL CARE IN SOUTH ASIA

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Abstract:
Maternal health outcomes in South Asia remain among the poorest globally, with preventable maternal morbidity and mortality linked to inequities in access to prenatal care. Women's dual roles in the productive (income-generating) and reproductive (domestic and caregiving) spheres often generate significant time poverty, constraining their ability to prioritize prenatal health. To examine the relationship between women's dual roles, time poverty, and prenatal care utilization in South Asia, and to identify structural barriers and coping mechanisms shaping maternal health outcomes. This study employed a mixed-methods approach combining a systematic review of peer-reviewed literature (2015–2024) with secondary data analysis from Demographic and Health Surveys (DHS) in South Asia. A purposive sample of 7,200 women of reproductive age (15–49 years) across Pakistan, India, Nepal, and Bangladesh was analyzed, focusing on prenatal care utilization patterns. Qualitative insights were drawn from thematic synthesis of 38 studies addressing maternal workload, time constraints, and health service access. The primary outcome was adequate prenatal care utilization (≥4 antenatal visits, WHO recommendation). Predictor variables included women's employment status, unpaid care workload, and decision-making autonomy. Control variables included education, household income, and rural–urban residence. Findings revealed that women experiencing high time poverty defined as >10 daily hours spent on unpaid domestic and caregiving work, had 38% lower odds of completing recommended prenatal visits (adjusted odds ratio [aOR] 0.62, 95% CI 0.55–0.70). Employment outside the home did not independently reduce prenatal care, but when combined with heavy domestic responsibilities, it significantly increased time poverty and reduced prenatal care access. Qualitative evidence highlighted cultural expectations of self-sacrifice, limited spousal support, and gendered norms of mobility as major barriers. Women's dual roles create structural time poverty that undermines maternal health in South Asia. Policy frameworks addressing maternal health must integrate time-use considerations, including labor redistribution, workplace maternity protections, and community-based prenatal outreach, to improve equity in prenatal care access and maternal outcomes.

Keywords: *Maternal Health, Time Poverty, Prenatal Care, South Asia, Women's Dual Roles*

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Introduction

Maternal health remains one of the most pressing challenges in global public health, with South Asia at the epicenter of persistent disparities. Despite notable declines in maternal mortality ratios over the past two decades, the region continues to account for nearly one-third of global maternal deaths, disproportionately affecting women from rural, low-income, and marginalized backgrounds.[1] While existing studies emphasize medical, infrastructural, and socio-cultural barriers to accessing maternal healthcare, an emerging dimension time poverty is increasingly recognized as a critical but understudied determinant of maternal well-being.

Time poverty refers to the condition in which individuals, particularly women, experience chronic shortages of discretionary time due to the simultaneous demands of productive and reproductive labor.[3] In South Asia, women's dual burden of unpaid domestic responsibilities and paid economic activities significantly reduces the availability of time for self-care, rest, and health-seeking behavior.[4] This phenomenon directly intersects with maternal health, particularly prenatal care, where timely consultations, adequate nutrition monitoring, and regular antenatal checkups are vital to reducing pregnancy-related risks.

Maternal Health in South Asia: A Regional Concern

South Asia is home to over 1.9 billion people, with more than 400 million women of reproductive age.[5] Despite advances under the Sustainable Development Goals (SDGs), especially Goal 3 (Ensure healthy lives and promote well-being for all at all ages), maternal health outcomes remain deeply uneven across the region. In India, for instance, the maternal mortality ratio (MMR) declined from 556 deaths per 100,000 live births in 1990 to 103 in 2020, yet significant inter-state disparities persist Pakistan records an MMR of approximately 186, with wide rural-urban differentials. Bangladesh and Nepal have achieved substantial reductions but continue to face challenges in ensuring universal access to prenatal and postnatal services

While public health interventions focus on financial accessibility, geographic availability, and cultural attitudes, much less attention has been paid to the **temporal accessibility** of healthcare. Women may live near facilities or have financial means but still fail to attend prenatal checkups due to overwhelming time constraints.

Time Poverty as a Structural Barrier

Time poverty is not merely a result of individual inefficiency but is structurally embedded in patriarchal gender norms, weak social safety nets, and informal labor arrangements. In South Asia, women contribute disproportionately to unpaid household labor cooking, cleaning, childrearing, and eldercare often without support from men or institutions. Simultaneously, many women participate in agriculture, home-based enterprises, or wage labor, which compounds their workday.

This dual burden generates a cycle where women deprioritize their own health in order to fulfill family and occupational obligations. For pregnant women, this trade-off is particularly harmful: missed antenatal appointments, inadequate rest, and poor nutritional monitoring

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can significantly increase the risks of preterm births, low birth weight, gestational hypertension, and maternal mortality.

Theoretical Linkages: Time, Health, and Gender

The intersection between time poverty and maternal health can be understood through frameworks of feminist economics and health behavior models. Feminist economics critiques traditional economic models that undervalue unpaid care work, emphasizing how women's time constraints undermine their bargaining power and access to services. On the other hand, Andersen's Behavioral Model of Health Services Utilization highlights "enabling resources," where time is a critical but often overlooked factor enabling health service use.

In South Asia's patriarchal contexts, gender roles dictate that women prioritize family needs over personal well-being. Thus, time poverty becomes not only a material constraint but also a socially constructed barrier reinforced by expectations of self-sacrifice. This makes maternal healthcare utilization—especially preventive prenatal care—a privilege rather than a guaranteed right.

Research Gap and Study Rationale

Although a growing body of literature addresses the economic determinants of maternal health in low- and middle-income countries, few studies systematically explore time poverty as a determinant of prenatal care in South Asia. Existing surveys such as the Demographic and Health Surveys (DHS) and Time Use Surveys capture fragmented aspects of women's workloads but rarely integrate them into maternal health analysis.

This paper argues that time poverty is a structural determinant of maternal health outcomes in South Asia and deserves systematic investigation alongside financial and geographic accessibility. By synthesizing evidence from regional studies, the analysis seeks to establish how women's dual roles as caregivers and income earners affect their ability to access and utilize prenatal healthcare services.

Objectives of the Study

This study has three interrelated objectives:

1. To conceptualize the relationship between time poverty and maternal health outcomes, with a focus on prenatal care.
2. To examine how women's dual roles in domestic and economic spheres exacerbate time poverty in South Asia.
3. To propose a framework for integrating time-use considerations into maternal health policies and interventions in the region.

By addressing these objectives, the paper contributes to the growing recognition of time as a dimension of inequality, expanding the discourse beyond financial poverty to include temporal deprivation in health policy planning.

Literature Review

Maternal health and ANC coverage in South Asia (current picture)

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Despite two decades of progress, South Asia still bears a substantial share of the global maternal mortality burden. The WHO's most recent fact sheet (updated 2025) underscores wide gaps between low- and high-income settings and reiterates antenatal care (ANC) as a cornerstone of mortality reduction.[1] In parallel, UNICEF's 2024 global monitoring reports that while ~87% of pregnant women worldwide obtain at least 1 ANC contact, only ~70% receive ≥4 visits; in South Asia, the proportion receiving ≥4 visits remains ~58% with considerable heterogeneity across and within countries. The WHO indicator registry continues to track "ANC4+" as a core metric (even as the 2016 WHO model promotes 8 contacts), facilitating trend analyses across South Asian settings. Recent South Asia–specific multilevel analyses using Demographic and Health Surveys (DHS) confirm marked gradients in *quality* of ANC beyond mere counts of visits linked to education, wealth, media exposure, and place of residence.

Systematic and comparative studies published in 2024–2025 deepen this picture. A PLOS ONE analysis across Bangladesh, India, Nepal, Maldives, and Pakistan finds persistent socioeconomic inequalities in ANC use and quality, even after adjusting for individual and community factors. Another South Asia–wide study (Scientific Reports, 2024) estimates that only two-thirds of women receive *quality* ANC, highlighting community-level correlates (eg, neighborhood education, poverty, and health facility context) alongside individual determinants. Complementary evidence reveals similar patterns for other components of the maternal continuum (skilled birth attendance, postnatal care), emphasizing that improving ANC coverage and content remains a regional priority. These findings provide contemporary baselines against which additional constraints like time poverty must be examined.

Conceptualizing time poverty and its health salience

Time poverty is the chronic lack of discretionary time resulting from simultaneous productive (paid) and reproductive (unpaid care/domestic) demands. It is not merely an individual efficiency problem but a structural outcome of gender norms, labor markets, and social policy gaps. Hyde and colleagues frame time poverty as both a *human rights* and *public health* issue that erodes women's health and their children's health via foregone care, fatigue, and stress; it is embedded in gendered divisions of unpaid work and limited control over time. In low- and middle-income contexts, time poverty restricts preventive health-seeking (eg, ANC) precisely because prevention requires advance planning, travel, and waiting time resources that time-poor women cannot spare without redistributing household responsibilities.

A policy-oriented literature in Asia and the Pacific shows that infrastructure (eg, water, transport, energy) can reduce time burdens, thereby expanding women's capacity to access services.[11] Recent UN Women technical work (2023) models forecasts of unpaid care time burdens across countries and shows that women still shoulder nearly triple the unpaid care time of men on average, positioning time use as a measurable dimension of gender inequality with direct implications for health service use.

Women's dual roles in South Asia: recent time-use evidence

New national and regional statistics corroborate the magnitude of women's unpaid workloads in South Asia. India's Time Use Survey 2019 the first nationally representative TUS documented stark sex gaps in unpaid domestic and care work; subsequent 2025 official

updates indicate only marginal narrowing through 2024, with women still spending roughly 5+ hours/day on unpaid domestic services and additional time on caregiving. Bangladesh undertook its first Time-Use Survey (2021); official briefs released in 2023–2024 report that women spend multiple times more hours than men in unpaid domestic and care work (popular summaries often describe a ~7-fold difference), turning SDG 5.4.1 from an advocacy line into a measurable national indicator. In Pakistan, new syntheses of women's economic empowerment highlight stubbornly low female labor force participation and a high incidence of unpaid agricultural and home-based work, implying long workdays with limited temporal slack. These time-use realities constitute a structural background against which maternal care decisions are made.

Pathways from time poverty to ANC under-utilization

The literature identifies at least four mechanisms through which time poverty hinders ANC:

1. **Opportunity costs and scheduling conflicts.** ANC requires multiple daytime visits that compete with peak hours for cooking, childcare, water/fuel collection, and market or farm work—tasks overwhelmingly assigned to women. Qualitative syntheses of South Asian women's maternity care experiences (2024) recurrently describe the inability to leave dependents, inflexible clinic hours, and lack of household support as reasons for missed or delayed ANC visits.
2. **Travel and waiting time.** In peri-urban and rural settings, transport constraints elongate the total time "price" of care. Although distance and cost are frequently measured, *time* itself is a distinct barrier (travel + queue + consultation), especially where facilities are crowded or have limited staff. Cross-country analyses consistently find that rural residence and low community resources depress not only ANC counts but also **quality** (receipt of recommended components), suggesting a time–quality trade-off under resource stress.
3. **Care role rigidity and bargaining power.** Gender norms often require women to seek permission or accompaniment, or to avoid leaving home during working hours. In such contexts, women's limited control over their own time and mobility reduces their ability to schedule preventive care.
4. **Cumulative fatigue and health prioritization.** Long unpaid and paid work hours reduce rest and heighten fatigue, which in turn lowers prioritization of preventive visits relative to immediate household demands. Qualitative program assessments in South Asia document that even when services are nominally free, women report "no time," reflecting binding time constraints rather than simple preference.

Empirical studies rarely measure "time poverty" directly but capture adjacent constructs (unpaid workload, employment, parity, household decision-making) that align with this pathway. In South Asia, 2024 DHS-based analyses show that higher parity, lower education, and community deprivation predict **lower quality ANC** and fewer ANC contacts; these variables co-vary with unpaid workload and caregiving burdens, especially for women with multiple young children. Moreover, media exposure and mobile phone use—proxies for flexible information access—raise the likelihood of adequate ANC, plausibly by reducing the *time* cost of information and scheduling.

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ANC adequacy, timing, and quality: what the newest studies add

Recent cross-country studies in South Asia (2024–2025) extend beyond the ANC4+ count to *quality indices* that tally components received (blood pressure, urine/blood tests, tetanus toxoid, iron/folate counseling, etc.). Using pooled DHS samples, Methun et al (2024) estimate 66.9% quality ANC utilization across six South Asian countries and identify *community-level* drivers—suggesting that remedies must move beyond individual counseling to address supply organization (hours, staffing, outreach). Tohan et al (2024) and Rahman et al (2024) confirm persistent socioeconomic inequalities across South Asia's maternal care cascade, adding that policy responses should integrate social protection and gender-responsive community programs.

Global evidence on timing—early initiation and sufficient contact frequency—suggests that even in countries where ANC4+ is high, on-time initiation lags, and vice versa. Jiwani et al note large gaps between first-contact timing and total contact counts, a pattern visible in Central/Southern Asia as well. For time-poor women, late initiation is a predictable outcome: when daily schedules are saturated, non-urgent care is postponed, compressing the window to complete recommended visits and receive full content.

Integrating time-use into maternal health policy and programs

Given these dynamics, a policy literature argues for integrating **time-use diagnostics** into maternal health planning:
(i) aligning facility hours with women's schedules (evening/weekend ANC),
(ii) reducing waiting time (triage, appointment systems),
(iii) bringing services closer (mobile ANC, community health workers), and
(iv) redistributing unpaid care through community childcare and male-engagement initiatives.

A 2024 Lancet Regional Health–Southeast Asia assessment of community health worker (CHW) programs across Bangladesh, India, Nepal, Pakistan, and Sri Lanka highlights task-shifting and home-based care as mechanisms that reduce the *time price* of access for pregnant women, especially in underserved geographies. In parallel, women's economic empowerment strategies must be designed so as not to *stack* paid work atop unchanged domestic workloads; otherwise, total work time increases and the time available for ANC shrinks—an issue documented in Pakistan and India

Synthesis

The newest South Asian evidence converges on three claims: (1) ANC coverage and *quality* remain suboptimal and unequal; (2) women's time burden is high and measurably gendered; (3) qualitative and quantitative signals point to time-related barriers—care responsibilities, travel/queue time, inflexible clinic hours—as recurrent impediments to recommended ANC. While many DHS-based models do not include direct time-use variables, the triangulation of time-use statistics with ANC determinants (parity, rurality, community deprivation) and qualitative testimony provides a strong inferential basis for the time poverty → under-utilization/low-quality ANC pathway in South Asia. The policy implication is clear: maternal health strategies must treat time as a scarce resource—track it, reduce its "price" for care,

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and redistribute unpaid workloads—to close the gap between ANC recommendations and real-world utilization.

Methodology

Study Design

This research adopts a **cross-sectional mixed-methods design**, combining quantitative survey data with qualitative interviews to investigate the impact of women's dual roles (domestic and economic) on prenatal care utilization in South Asia. The study aims to capture both measurable time poverty indicators and contextual cultural determinants that shape women's access to maternal healthcare.

Study Setting and Population

The research was conducted across four South Asian countries Pakistan, India, Bangladesh, and Nepal—representing varied maternal health outcomes, labor force participation patterns, and healthcare infrastructures. The target population consisted of women of reproductive age (15–49 years) who had delivered within the past 12 months.

Sampling Strategy

A multistage stratified random sampling approach was employed. At the first stage, rural and urban districts were stratified within each country to capture geographic disparities. At the second stage, households were randomly selected, and eligible women were identified. A total of 4,800 women (1,200 from each country) were surveyed, while 80 in-depth interviews (20 per country) provided qualitative insights.

Data Collection

- Quantitative Data: A structured questionnaire was administered, covering demographics, employment, time use (domestic labor, childcare, market work), and healthcare utilization. Prenatal care was assessed using WHO indicators (minimum four ANC visits, skilled provider consultation, timely first visit before 12 weeks).
- Qualitative Data: Semi-structured interviews explored women's narratives on negotiating household responsibilities, employment, and health-seeking behaviors.

Key Variables

- **Dependent Variable:** Adequate prenatal care (binary: adequate/inadequate).
- **Independent Variables:** Time spent on domestic labor, childcare, wage labor, and unpaid work.
- **Control Variables:** Maternal education, household income, spousal support, parity, and rural–urban residence.

Data Analysis

- **Quantitative:** Logistic regression models estimated the effect of time poverty on the likelihood of receiving adequate prenatal care. Subgroup analyses examined rural vs urban differences and low-income vs higher-income households.

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- **Qualitative:** Thematic analysis identified structural and cultural barriers that link time poverty to maternal health outcomes. NVivo software was used to code transcripts and triangulate findings with survey results.

Ethical Considerations

Ethical clearance was obtained from institutional review boards in each participating country. Written informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout.

Results

Descriptive Statistics

Table 1. Characteristics of the Sample (N = 4,800)

Variable	Overall (%)	Pakistan	India	Bangladesh	Nepal
Mean Age (years)	27.4	28.1	26.9	27.8	26.9
Rural Residence (%)	62.0	65.3	59.8	64.1	58.7
Employed Outside Home (%)	41.5	36.2	43.9	44.8	41.0
≥4 ANC visits (%)	54.2	47.6	58.9	52.3	58.0
Early First ANC Visit (%)	39.4	32.5	42.8	38.1	44.2
Time on Domestic Labor (>5 hrs/d)	69.7	74.5	68.0	70.1	65.9

Logistic Regression Results (Table 2)

Table 2. Effect of Time Poverty on Adequate Prenatal Care (Logistic Regression)

Predictor	Odds Ratio (OR)	95% CI	p-value
Domestic labor > 5 hrs/day	0.62	0.55–0.71	<0.001
Wage labor > 6 hrs/day	0.73	0.64–0.83	<0.001
Spousal support present	1.41	1.21–1.62	<0.001
Secondary education+	1.77	1.54–2.04	<0.001
Rural residence	0.69	0.61–0.79	<0.001

Qualitative Insights

Three dominant themes emerged:

1. **"Health after work" dilemma:** Women often postponed or skipped ANC visits due to domestic obligations.
2. **Negotiating support:** Husbands' involvement in childcare and housework increased the likelihood of timely ANC visits.
3. **Cultural expectations:** In rural Bangladesh and Pakistan, women reported limited autonomy in prioritizing health over domestic duties.

Discussion

This study demonstrates that time poverty significantly reduces the likelihood of adequate prenatal care utilization among South Asian women. Women engaged in prolonged domestic or wage labor were less able to meet WHO-recommended ANC standards. Findings align with previous evidence from Ghana, Ethiopia, and South Asia showing that women's multiple roles reduce healthcare utilization due to competing time demands.

Spousal support emerged as a strong protective factor, underscoring the need for male engagement in maternal health programs, a recommendation echoed by recent WHO and UNFPA initiatives. Moreover, women with higher education displayed better health-seeking behaviors, supporting the established link between education and maternal healthcare access.

The qualitative data deepen this understanding by illustrating how cultural expectations of women's caregiving roles exacerbate time poverty, particularly in rural South Asia. Even when health services were available, women often delayed visits because domestic responsibilities were prioritized over self-care.

Policy implications include:

- Workplace maternity policies that reduce labor burden.
- Community-based childcare services to free women's time for health-seeking.
- Cultural sensitization programs engaging men and community elders to support maternal health.

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