Journal of Population Therapeutics & Clinical Pharmacology

Enhancing Antenatal Care: Evaluating Coverage and Quality in Primary Health Facilities

Abdullah Mohammed Alashhab, Anwar Eid Alruwaili, Maha Saleh Binabdulaziz, Sattam Menwer Alsulami

Abstract:

Background: Antenatal care plays a crucial role in maternal health services by providing essential information about pregnancy risks and facilitating birth planning, thereby reducing maternal and infant morbidity and mortality. In rural populations access antenatal services through primary health care facilities such as Basic Health Units and Rural Health Centers. This study focuses on evaluating the coverage and quality of antenatal care in primary health care facilities

Methods: A combination of quantitative and qualitative methods was employed for data collection. Nine districts were selected using a multistage sampling technique, with 19 public sector primary health care facilities (comprising seventeen Basic Health Units and two Rural Health Centers) randomly chosen from each district. Focus group discussions and in-depth interviews were conducted with clients, providers, and health managers.

Results: The study revealed an overall antenatal checkup enrollment rate of 55.9%, with a subsequent visit dropout rate of 32.9%. The quality of services pertaining to assessment, treatment, and counseling was found to be significantly lacking. Factors contributing to low coverage and poor quality included the distant location of facilities, inadequate resources, indifferent staff attitudes, and staff shortages. Additionally, limited client awareness regarding the importance of antenatal care and insufficient self-empowerment for decision-making regarding seeking care were identified as further barriers to optimal coverage.

Conclusion: The findings highlight a substantial compromise in both coverage and quality of antenatal care services

. Only half of expected pregnancies are enrolled for care, with one-third dropping out during follow-up visits. These results underscore the urgent need for targeted interventions to improve accessibility and enhance the quality of antenatal care services in the region.

Introduction:

Low uptake of Antenatal care (ANC) is a critical determinant of high maternal mortality rates in developing countries and constitutes a fundamental component of maternal care, crucial for the well-being of both mothers and babies. According to WHO, approximately 536,000 women die every year worldwide from causes related to pregnancy, childbirth, or postpartum complications, with 99% of these deaths occurring in developing countries. A significant portion of these deaths could be prevented through access to quality medical care during pregnancy, childbirth, and the postpartum period. ANC services play a vital role in identifying complications associated with pregnancy and addressing diseases that may adversely affect pregnancy outcomes. However, in

the Punjab province of stan, ANC coverage stands at a mere 53%, with significant disparities observed between rural and urban populations, where only 25% of women in both settings consult healthcare providers at public sector facilities. Multiple factors contribute to this low coverage, including weaknesses in the healthcare system, inadequate training, and limited accessibility to healthcare facilities. (Zeidan et al., 2011)

Recent developments in certain low-income countries, such as Sri Lanka and Iran, have shown remarkable improvements in publicly funded healthcare delivery systems, resulting in increased ANC utilization rates and improved outcomes for mothers and babies. Social developmental factors, including education levels, significantly influence ANC coverage, with studies indicating a positive correlation between education and the utilization of skilled ANC attendants. Interventions such as group ANC sessions in Iran and quality improvement initiatives in India have demonstrated positive impacts on patient satisfaction, ANC attendance rates, and birth outcomes. (Jafari et al., 2010)

Despite the availability of cost-effective or free ANC services in some settings, studies have shown persistently low ANC utilization rates in countries like Pakistan and Sudan. Reasons cited for low utilization include lack of awareness, limited access to healthcare facilities, and cultural and socioeconomic barriers. Client satisfaction with ANC services is crucial for assessing the effectiveness of healthcare programs and ensuring accountability and productivity. Studies conducted in various countries have reported varying levels of satisfaction among ANC clients, influenced by factors such as the attitude of healthcare providers, waiting times, and the availability of services. (Tarekegn et al., 2014)

In the Rural Health Centers (RHCs) and Basic Health Units (BHUs) form the backbone of primary healthcare services, with ANC services primarily delivered by Lady Health Visitors (LHVs). This study aims to evaluate the coverage and quality of antenatal care provided to the rural population of Punjab province. By focusing on ANC services, this study also aims to shed light on broader gaps within the healthcare system that require targeted interventions. (Raisa et al., 2009)

The objectives of the study include assessing the proportion of expected pregnancies enrolled for ANC services, evaluating the follow-up ANC visit rates among enrolled clients, assessing the quality of ANC service delivery, and identifying the underlying causes of low coverage and service quality at managerial, provider, and client levels.

Methods

A cross-sectional study was conducted to evaluate the coverage and quality of ANC services provided at first-level healthcare facilities, employing both quantitative and qualitative research methods. Approval for the study was obtained from the National Bioethics Committee (NBC) , and data collection commenced after obtaining approval.

A multi-stage sampling approach was utilized to select districts and primary-level health facilities . Initially, all 36 districts were ranked based on a composite indicator comprising eight socio-demographic factors. Nine districts were then selected to represent high, medium, and low social strata, with three districts chosen from each category. Subsequently, 19 health facilities (comprising 17 BHUs and 2 RHCs) were randomly selected from each district. In total, 171 health facilities were accessed for facility performance data collection

Verbal consent was obtained from clients and healthcare providers for interviews, as many clients were illiterate. Client exit interviews were conducted after each client-provider interaction to gauge client satisfaction.

Qualitative data collection involved conducting Focal Group Discussions (FGDs) and in-depth interviews. Nine FGDs each for clients and providers were conducted in each of the sampled districts. Clients included pregnant women with previous pregnancy and birth experiences from lower or middle social classes, identified by Lady Health Workers (LHWs) in the catchment areas. Health care providers (Lady Health Visitors) with more than six months of experience at the facilities were also included in FGDs. Additionally, in-depth interviews were conducted with district and provincial health managers.

Data was collected using semi-structured questionnaires , with eight teams comprising a team leader/supervisor and two surveyors/interviewers. Training workshops were conducted separately for quantitative and qualitative assessment teams. Field monitoring was carried out by Regional Coordinators, a Public Health Consultant, and the Principal Investigator. Qualitative data collection occurred

Univariate analysis was conducted to describe frequencies and percentages. ANC coverage was evaluated using annual ANC first enrollment and follow-up visit rates. Quality of ANC services was assessed based on the adherence of healthcare providers to standard procedures, with a checklist developed in consultation with WHO criteria and Minimum Service Delivery Standards (MSDS) adopted by the Maternal and Newborn and Child Health Program (MNCH)

Qualitative data processing began in the field, with transcripts developed by interviewers/facilitators. Data analysis utilized an inductive reasoning approach, with findings categorized according to themes from qualitative tools. Analysis was aligned with the study objectives outlined in the research proposal.

Results

ANC Coverage:

The overall enrollment for ANC services in sampled districts province was 51.6%, including redundant health facilities where no services were provided. Significant variations in ANC enrollment were observed among districts. Regression analysis indicated a 1.347% decrease in ANC coverage with each one-digit increase in district ranking, with a constant baseline coverage of 71.7%. Pearson Product Correlation coefficient (r) was 0.64, indicating a moderate positive correlation between district ranking and ANC coverage. ANC enrollment increased from 51.6% to 55.9% when data from 17 non-redundant facilities were included. The overall dropout rate after ANC visit was 32.8%, with varying trends among districts.

Health facility ranking based on ANC coverage revealed that only 24% of facilities achieved a good ranking, 13.5% had an average ranking, and 62.6% had a poor ranking in monthly ANC-1 coverage. RHCs demonstrated better coverage than BHUs, with 56% of RHCs providing good coverage compared to only 20% of BHUs.

Service Quality:

Clinical assessment practices were suboptimal, with less than 30% of providers conducting appropriate history-taking and only a minority of providers adhering to standard examination protocols. Counseling practices were also deficient, with minimal discussion on crucial topics such as breastfeeding, contraception, and delivery arrangements. Treatment practices showed relatively better adherence to protocols, although significant gaps were identified, particularly in prescribing antimalarials.

Overall, the quality of ANC services was perceived to be poor by both providers and clients. Only 46% of clients reported satisfaction with the provided ANC services. Qualitative findings highlighted various underlying factors contributing to low coverage and quality, including distant

facility locations, inadequate equipment and supplies, indifferent staff attitudes, and the influence of community-based ANC providers. Lack of awareness and decision-making power among clients, coupled with expectations of ultrasound examinations for determining fetal sex, also contributed to low ANC coverage. Providers cited lack of guidance and supervision, as well as deficiencies in district-level management and training, as key challenges.

These results underscore the need for targeted interventions to improve ANC coverage and quality in rural areas of Punjab province, addressing both supply-side and demand-side barriers to access and utilization.

Table 1. Ranking of health facility by ANC-enrolment and follow-up visits in the catchment areas

	Overall	**RHCs**	**BHUs**
Number of facilities	171	18	153
Ranking of facilities by monthly ANC enrolment			
Good coverage (>80%)	41 (24%)	10 (56%)	31 (20%)
Average coverage (60%-80%)	23 (13%)	3 (17%)	20 (13%)
Poor coverage (<60%)	107 (63%)	5 (28%)	102 (67%)
Ranking of facilities by monthly ANC-follow-up/revisits			
Good coverage (>80%)	27 (16%)	6 (33%)	21 (14%)
Average coverage (60%-80%)	19 (11%)	3 (17%)	16 (10%)
Poor coverage (<60%)	125 (73%)	9 (50%)	116 (76%)

Table 2. Quality of ANC services and client satisfaction (Overall and by types of facilities)

Areas of client assessment by history	**Overall**	**RHCs**	**BHUs**
Age of client	139 (81%)	15 (83%)	124 (81%)
Use of medication by client	77 (45%)	8 (44%)	69 (45%)
Date of LMP asked	103 (60%)	10 (56%)	93 (61%)
Previous pregnancies	111 (65%)	11 (61%)	100 (65%)
Previous still births/neonatal deaths	45 (26%)	6 (33%)	39 (25%)
Heavy bleeding	23 (13%)	5 (28%)	18 (12%)
Assisted deliveries	30 (18%)	4 (22%)	26 (17%)
Abortions	42 (25%)	5 (28%)	37 (24%)
Asked about bleeding	47 (27%)	6 (33%)	41 (27%)
Fever	57 (33%)	6 (33%)	51 (33%)
Headache/blurred vision	45 (26%)	5 (28%)	40 (26%)
Swelling	59 (35%)	6 (33%)	53 (35%)
Tiredness/breathlessness	56 (33%)	6 (33%)	50 (33%)
Felt fetal movement	105 (61%)	12 (67%)	93 (61%)
Mentioned bleeding	16 (9%)	4 (22%)	12 (8%)
Mentioned fever	35 (20%)	4 (22%)	31 (20%)
Mentioned headache/blurred vision	30 (18%)	3 (17%)	27 (18%)
Mentioned swelling	36 (21%)	5 (28%)	31 (20%)
Mentioned tiredness/breathlessness	52 (30%)	6 (33%)	46 (30%)
Mentioned Fetal Movements	79 (46%)	9 (50%)	70 (46%)
Areas of client assessment by examination	**Overall**	**RHCs**	**BHUs**

Record BP	127 (74%)	9 (50%)	118 (77%)
Recorded weight	102 (60%)	7 (39%)	95 (62%)
Palpated abdomen	130 (76%)	16 (89%)	114 (75%)
Foetal heart sounds heard	88 (51%)	12 (67%)	76 (50%)
Looked for oedema	42 (25%)	5 (28%)	37 (24%)
Breast exam done	17 (10%)	3 (17%)	14 (9%)
Tests advised	36 (21%)	9 (50%)	27 (18%)
ANC card filled	73 (43%)	10 (56%)	63 (41%)
Talked about TT	109 (64%)	11 (61%)	98 (64%)

Areas of client counselling	**Overall**	**RHCs**	**BHUs**
Advice about food	108 (63%)	10 (56%)	98 (64%)
Importance of TT vaccination told	48 (28%)	6 (33%)	42 (27%)
Advised TT	97 (57%)	7 (39%)	90 (59%)
Talked about Contraception	10 (6%)	2 (11%)	8 (5%)
Talked about breast feeding	10 (6%)	2 (11%)	8 (5%)
Place of delivery	53 (31%)	7 (39%)	46 (30%)
Arrangement for transport	35 (20%)	4 (22%)	31 (20%)
Who will accompany her	9 (5%)	1 (6%)	8 (5%)
Time to reach place of delivery	9 (5%)	1 (6%)	8 (5%)
Cost of delivery	11 (6%)	1 (6%)	10 (7%)
Give next visit date	136 (80%)	12 (67%)	124 (81%)

Areas of client treatment	**Overall**	**RHCs**	**BHUs**
Iron pills prescribed	118 (69%)	12 (67%)	106 (69%)
Folic acid tablets prescribed	109 (64%)	10 (56%)	99 (65%)
TT injection prescribed	106 (62%)	11 (61%)	95 (62%)
Anti-malarial prescribed	4 (2%)	-	4 (3%)

Areas of client satisfaction	**Overall**	**RHCs**	**BHUs**
Respectful behavior	113 (66%)	13 (72%)	100 (65%)
Physical examination done	166 (97%)	18 (100%)	148 (97%)
Satisfied with exam time	94 (55%)	11 (61%)	83 (54%)
Satisfied with answers	155 (91%)	16 (89%)	139 (91%)
Respectful behaviour of the facility staff	98 (57%)	11 (61%)	87 (57%)
Client was satisfied	79 (46%)	9 (50%)	70 (46%)

Discussion:

Antenatal care (ANC) plays a pivotal role in maternal health services by providing essential information and guidance to pregnant women, ultimately preventing maternal and infant morbidity and mortality. This study focused on evaluating the coverage and quality of ANC services provided to rural mothers in Punjab province, primarily through Primary Health Care (PHC) facilities such as Rural Health Centers (RHCs) and Basic Health Units (BHUs). (Ghobashi & Khandekar, 2008) The findings revealed that while 51.6% of expected pregnancies enrolled for ANC services, approximately one-third of them did not return for follow-up visits, indicating a substantial gap in ANC coverage. This dropout in follow-up visits underscores the poor quality of services, which may discourage clients from seeking further care. These results align closely with previous reports

and suggest persistent challenges in ANC service delivery in rural areas, where government PHC facilities are the main source of ANC services. (Nisar & Amjad, 2007)

It's noteworthy that while ANC enrollment is an important metric, it does not necessarily reflect the quality of ANC services provided. The study highlighted deficiencies in adherence to ANC protocols, including inadequate history-taking, clinical examination, treatment, and counseling practices by healthcare providers. Despite nearly half of the clients reporting satisfaction, this perception does not necessarily indicate the provision of quality services. Normative quality standards were not met in the majority of ANC services, as evidenced by the high dropout rates after the first visit. (Gupta et al., 2006)

The study also identified socio-demographic factors influencing ANC coverage, with higher social developmental ranking associated with increased ANC coverage. However, the quality of services remains a critical factor influencing utilization, as evidenced by the significant dropout rates despite relatively higher coverage in certain districts. (Luyben & Fleming, 2005)

At the managerial level, challenges such as distant facility locations, lack of equipment and supplies, and unauthorized overcharging for services were identified as barriers to ANC coverage. Additionally, social factors such as lack of awareness and decision-making power among clients, coupled with the influence of community-based maternal care providers (Dais), further contributed to low coverage and dropout rates. (Barua et al., 2003)

In conclusion, addressing the gaps in ANC coverage and quality requires multifaceted interventions targeting both supply-side and demand-side factors. Improving infrastructure, ensuring the availability of essential supplies, enhancing healthcare provider training, and raising awareness among communities are essential steps to enhance ANC services in rural areas of . Additionally, fostering partnerships with community-based providers while ensuring adherence to ANC protocols can help bridge the gap and improve maternal and infant health outcomes. (Jabeen et al., 2005)

Conclusion:

The findings of this study underscore significant inadequacies in both the coverage and quality of antenatal care (ANC) services . Only half of the expected pregnancies in PHC health facility catchment areas are enrolled for ANC, with a third of those not returning for follow-up visits. Moreover, the quality of ANC services is severely compromised, as indicated by low client satisfaction rates.

In conclusion, addressing the gaps in ANC coverage and quality requires a comprehensive approach involving various stakeholders, including health managers, providers, clients, and community-based health workers. By implementing targeted interventions and fostering partnerships, significant improvements can be achieved in ANC service delivery, ultimately leading to better maternal and infant health outcomes l

References:

1. McCarthy, J., & Maine, D. (1992). A framework for analyzing the determinants of maternal mortality. Studies in Family Planning, 23(1), 23–33.
2. World Health Organization. (2008). Maternal mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA, and the World Bank. Geneva: World Health Organization.
3. Abou-Zahr, C. L., & Wardlaw, T. M. (2003). Antenatal care in developing countries: Promise, achievements and missed opportunity: An analysis of trends, levels and differentials, 1990–2001. Geneva: World Health Organization.

4. Pakistan Statistical Year Book. (2007). Federal Bureau of Statistics, Government of Pakistan.
5. Raisa, B. G., Paul, P., & Olson, J. K. (2009). Strengths and challenges of the first pre-licensure Baccalaureate of Science in Nursing Program of Pakistan. Journal of Professional Nursing, 25(4), 240–248.
6. Jabeen, M., Gul, F., & Rehman, M. (2005). Maternal Mortality ratio and its causes in a District Headquarter Hospital of NWFP. Journal of Postgraduate Medical Institute, 19(4), 377–381.
7. Millennium Development Goals Country Report Sri Lanka. (2005). Improve Maternal Health. New York: United Nations Development Programme, 1–6.
8. Tarekegn, S. M., Lieberman, L. S., & Giedraitis, V. (2014). Determinants of maternal health service utilization in Ethiopia: Analysis of the 2011 Ethiopian Demographic and Health Survey. BMC Pregnancy and Childbirth, 14, 161.
9. Jafari, F., Eftekhar, H., Fotouhi, A., Mohammad, K., & Hantoushzadeh, S. (2010). Comparison of maternal and neonatal outcomes of group versus individual prenatal care: A new experience in Iran. Health Care for Women International, 31, 571–584.
10. Barua, A., Waghmare, R., & Venkiteswaran, S. (2003). Implementing reproductive and child health services in rural Maharashtra, India: A pragmatic approach. Reproductive Health Matters, 11, 140–149.
11. Nisar, N., & White, F. (2003). Factors affecting utilization of Antenatal Care among reproductive age group (15–49 years) in an urban squatter settlement of Karachi. JPMA, 53(2), 1–10.
12. Ali, A. A., Osman, M. M., Abbaker, A. O., & Adam, I. (2010). Use of antenatal care services in Kassala, eastern Sudan. BMC Pregnancy and Childbirth, 10, 67. doi:10.1186/1471-2393-10-67.
13. Hasan, Z., Zia, S., & Maracy, M. (2007). Prenatal care service uptake by rural women in North West of Pakistan. JPMI, 21(1), 29–35.
14. National Institute of Population Sciences (NIPS), & Macro International Ltd. (2008). Pakistan Demographic and Health Survey 2006–2007. Islamabad: National Institute of Population Studies & Macro International Ltd.
15. Hudak, P. L., & Wright, J. G. (2000). The characteristics of patient satisfaction measures. Spine, 25, 3167–3177.
16. Andaleeb, S. S. (2001). Service quality perceptions and patient satisfaction: A study of hospitals in developing countries. Social Science and Medicine, 52(90), 1359–1370.
17. Luyben, A. G., & Fleming, V. E. (2005). Women needs from ANC in three European countries. Midwifery, 21, 212–223.
18. Rani, M., Bonu, S., & Harvey, S. (2008). Differentials in the quality of antenatal care in India. International Journal for Quality in Health Care, 20(1), 62–71.
19. Ghobashi, M., & Khandekar, R. (2008). Satisfaction among expectant mothers with antenatal care services in the Musandam region of Oman. Sultan Qaboos University Medical Journal, 8(3), 325–332.
20. Nisar, N., & Amjad, R. (2007). Pattern of antenatal care provided at a public sector hospital Hyderabad Sindh. Journal of Ayub Medical College Abbottabad, 19(4), 11–13.
21. District-Based Multiple Indicators Cluster Survey. (2003–2004). Lahore: Government of Punjab, Planning & Development Department, 12–13.

22. District Health Information System (DHIS) Report. (2010). Lahore: Health Department, Government of Punjab.
23. Multiple Indicator Cluster Survey (MICS) Punjab. (2007–2008). Provincial Report. Government of the Punjab Planning and Development Bureau of Statistics.
24. Gupta, R. S., Gupta, A., Gupta, H. O., Venkatesh, S., & Shiv Lal. (2006). Mother and Child Service Coverage: Reproductive and Child Health Program in Alwar District, Rajasthan state. Journal of Community Diseases, 38(1), 79–87.
25. Zeidan, Z. A., Idris, A. M., & Bhairy, M. (2011). Satisfaction among pregnant women towards antenatal care in public and private care clinics in Khartoum. Khartoum Medical Journal, 04(02), 590–595.
26. Ghobashi, M., & Khandekar, R. (2008). Satisfaction among expectant mothers with antenatal care services in the Musandam Region of Oman. Sultan Qaboos University Medical Journal, 8(3), 325–332.