Formative research for improving antenatal and postnatal care seeking and delivery practices for adolescent girls in Pakistan

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ABOUT THIS REPORT

The *Formative Research for Improving Antenatal and Postnatal Care Seeking and Delivery Practices for Adolescent Girls in Pakistan* was completed by Nutrition International and Momentum Ventures Inc. in partnership with the Government of Pakistan, with support from the Government of Khyber Pakhtunkhwa (Health Department), including the Directorate General Health Services, Provincial Nutrition Cell, and the District Health Office Swabi. The study was implemented under the Increase Gains in Nutrition by Integration, Education, Evaluation & Empowerment (IGNIT3) Project, funded by the Government of Canada.

This report was written by Saima Sadaf (MV), Jennifer Hatchard (NI), Richard Ninamou (NI), Nahida Raza (MV), and Huma Chishti (NI). Primary data collection and analysis was managed and conducted by Nahida Raza, Huma Chishti, and Saima Sadaf. Project direction and oversight for this formative research was provided by Jennifer Hatchard, Huma Chishti, Richard Ninamou, and Muhammad Tanveer (MV) with extensive support from Nutrition International's Pakistan Country Office and the IGNIT3-Pakistan project team, as well as Nutrition International's Maternal and Neonatal Health and Nutrition Portfolio.

CONTACT

For further information, please contact: Jennifer Busch-Hallen, Senior Global Portfolio Director, Maternal and Neonatal Health and Nutrition (jbuschhallen@NutritionIntl.org) or Shabina Raza, Pakistan Country Director (sraza@NutritionIntl.org).

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List of Acronyms and Abbreviations

Acronym or Abbreviation	Definition
AMMI	Advancing Maternal Health through MMS Implementation Research in Pakistan (project)
ANC	Antenatal care
BCC	Behaviour change communication
BCI	Behaviour change intervention
BHU	Basic Health Unit
BISP	Benazir Income Support Program
Cat C	Category C Hospital
Cat D	Category D Hospital
CMWs	Community midwives
DHIS	District Health Information System
DHO	District Health Office
FGD	Focus group discussion
FR	Formative research
GGHSS	Government Girls Higher Secondary School
HBM	Health Belief Model
HCPs	Healthcare providers
IDI	In-depth interview
IEC	Information, education, and communication
IFA	Iron-folic acid (supplement)
IGNIT3	Increase Gains in Nutrition by Integration, Education, Evaluation and Empowerment (project)
JM	Journey mapping
KAPs	Knowledge, attitudes, and practices
KP	Khyber Pakhtunkhwa
LHSs	Lady health supervisors
LHVs	Lady health visitors
LHWs	Lady health workers
LMICs	Low- and middle-income countries
MILs	Mothers-in-Law
MMS	Multiple micronutrient supplements
OPD	Outpatient department
PAGs	Pregnant adolescent girls
PDHS	Pakistan Demographic and Health Survey
PNC	Postnatal care
PPPAGs	Pregnant and postpartum adolescent girls
PTAs	Parent-teacher associations
RHC	Rural Health Centre
SEM	Socio-Ecological Model
SRHR	Sexual and reproductive health and rights
UC	Union Council
WASH	Water, sanitation and hygiene
WiNS	WASH in Schools
WHO	World Health Organization
WMOs	Women medical officers

Executive summary

Adolescent pregnancy poses significant health and social risks in Pakistan, particularly in underserved areas like Swabi District, Khyber Pakhtunkhwa. This formative research (FR), conducted under the IGNIT3 Project in partnership with the Government of Pakistan and with support from the Government of Khyber Pakhtunkhwa (Health Department), through the Directorate General Health Services, Provincial Nutrition Cell, and the District Health Office Swabi, sought to generate evidence to support the development of recommendations for improving the adolescent-friendliness of antenatal and postnatal care (ANC/PNC) with a focus on nutrition services for pregnant and postpartum adolescent girls (PPPAGs) in Swabi District and beyond.

The FR explored healthcare providers' (HCPs') knowledge, attitudes, and practices (KAPs) by cadre; PPPAGs' experiences related to ANC/PNC access, care-seeking, and adherence to nutrition recommendations; practical considerations for adolescent engagement including group ANC/PNC models; family perceptions and influence; and gender norms and social dynamics shaping adolescents' ability to seek and act on recommendations. Data were collected through 103 qualitative activities—comprising in-depth interviews (including journey mapping), focus group discussions, ANC observations, and exit interviews—across ten Union Councils with PPPAGs, HCPs, families, and educators.

Findings revealed that while HCPs generally demonstrate empathy toward PPPAGs—11 of 13 clinical care providers showed empathy, with none expressing overt stigma—service delivery is constrained by gaps in adolescent-specific training (demanded by 18 of 21 HCPs) and tools. Counselling was often generic, with limited adaptation of content for adolescents. Observations showed inconsistencies in service delivery, including anaemia screening, supplementation and dietary guidance, and counselling quality. Many of these challenges were also documented in the Advancing Maternal Health through MMS Implementation Research in Pakistan (AMMI) Project across all pregnant women and are not unique to PPPAGs, but are compounded for adolescent girls by their developmental stage, limited autonomy, and lack of recognition as a distinct group with specific physiological and psychosocial needs.

PPPAGs' access to care was shaped by strict accompaniment norms (13 of 18 observed sessions were accompanied, most commonly by a mother-in-law (MIL)), and care-seeking was often reactive, with ANC awareness typically emerging mid-pregnancy through family members rather than HCPs. Seven of 10 PPPAGs reported taking MMS or following dietary advice, though consistency was uneven due to side effects, affordability, and knowledge gaps. Family members—particularly MILs—acted as both gatekeepers and enablers; among 15 family responses, 11 indicated PPPAGs had no role in healthcare decisions. Dietary myths and MMS-related distrust may disproportionately affect PPPAGs given their limited food-related autonomy. Postnatal care was a distinct gap, with at least five of 12 family respondents reporting no routine postnatal visits. Group ANC/PNC models were widely viewed as promising but face substantial feasibility challenges, particularly around family permission. The education sector plays a minimal role in adolescent health: 14 of 15 teachers reported no structured programming on adolescent pregnancy, though many expressed readiness to support Sexual and Reproductive Health and Rights (SRHR) education with institutional backing.

These findings provide critical insights for strengthening the ANC/PNC care pathway—from care-seeking to service experience to recommendation uptake—toward supporting a positive pregnancy and postpartum experience for PPPAGs.

1. Introduction and context

1.1 Background and rationale

ADOLESCENT PREGNANCY IN PAKISTAN AND BEYOND: SCOPE OF THE ISSUE

Complications during pregnancy and childbirth are the second-leading cause of death among adolescent girls aged 15-19 globally,[1] and the risk of pregnancy-related deaths increases with decreasing age.[2] Adolescent pregnancy (adolescence is defined by the World Health Organization [WHO] as the period between the ages of 10 and 19) is associated with an increased risk for numerous adverse birth outcomes, including low birth weight, premature delivery, stillbirth, congenital anomalies, and neonatal mortality.[3] Studies have shown that pregnant and postpartum adolescent girls (PPPAGs), particularly those under the age of 15, face higher maternal mortality,[4] and higher rates of depression compared to older mothers.[5] Additionally, adolescent pregnancy and motherhood are associated with increased school dropout rates and economic vulnerability.[4] The cost of adolescent pregnancies, in terms of its devastating consequences on economic, intragenerational health and wellbeing, and social and physical factors at both individual and populations levels, is high.

Adolescent pregnancies are driven by poverty, and are more likely to occur in marginalized communities, where there are lack of education and employment opportunities. Girls living in impoverished conditions are up to six times more likely to experience pregnancy than girls living in wealthier households.[6] Annually, an estimated 12 million girls aged 15–19 give birth worldwide, with approximately 777,000 births occurring among girls under 15.[7] The global adolescent birth rate is 42 births per 1,000 girls, while in South Asia, rates range from 35 and 80 per 1,000.[7,8] In Pakistan, the 2017–18 Demographic Health Survey (PDHS 2018) indicated that eight percent of girls aged 15–19 have begun childbearing, though these figures are likely underestimated due to underreporting and cultural sensitivities.[9] While prevention of adolescent pregnancy and keeping girls in school is the ideal, the reality is that adolescent girls *are* getting pregnant, at alarming rates in some contexts, and urgently require tailored, quality care during the antenatal and postnatal periods. Effective delivery of tailored, quality care to pregnant and postpartum adolescents requires a framework and tools to support healthcare providers (HCPs), respecting and responding to intersectional factors such as age (10-14; 15-19) and stage (i.e., primigravida), marriage status, cultural and ethnic background, and other factors.

Adult female literacy in Pakistan (53%)[10] is well below global male (90%) and female (83%) rates,[11] with certain rural districts in Pakistan's Khyber Pakhtunkhwa (KP) province having alarmingly low rates well below the national average (as low as 13% in some districts), representing serious educational and gender disparities which undoubtedly affect girls' agency and health. Pakistan continues to face significant gender inequality, ranking last out of 148 countries in the 2025 World Economic Forum's Global Gender Gap Report [12] reflecting persistent disparities in education, economic participation, and health outcomes between men and women.

IMPORTANCE OF EARLY AND REGULAR ANTENATAL AND POSTNATAL CARE

Early and regular antenatal care (ANC) is crucial for detecting and managing pregnancy-related risks. ANC, especially in resource-limited settings, plays an important role in preventing malnutrition during pregnancy and supporting optimal birth outcomes. The 2016 WHO's ANC guidelines include 49 recommendations for a positive pregnancy experience,[13] 14 of which focus specifically on nutrition. Although these guidelines apply to all "pregnant women and adolescent girls" (aged 15-49), evidence informing these recommendations comes from studies primarily focused on older women in middle- and high-income countries.[13] This lack of adolescent-specific evidence is concerning, as adolescent girls, particularly in low-resource settings, have distinct health care needs. Providing tailored health care to adolescents that is both adolescent-friendly and adolescent-responsive is critical to ensuring equitable, effective, and acceptable services that support their development and well-being, aligning with the 2015 WHO's global standards for quality health-care services for adolescents.[14]

The terms adolescent-friendly and adolescent-responsive care are closely related but have distinct meanings.[14] *Adolescent-friendly care* refers to health services that are accessible, acceptable, equitable, appropriate, and effective for adolescents. This approach focuses on making services appealing and easy to use for young people by ensuring a welcoming environment, respectful

providers, privacy, confidentiality, and convenient hours. In contrast, *adolescent-responsive care* goes a step further. It not only ensures that services are friendly, but also actively addresses the unique needs, contexts, and vulnerabilities of adolescents. This includes considering factors such as age, gender, marital status, and social norms, and tailoring care accordingly. Adolescent-responsive approaches also emphasize the importance of involving adolescents in the design and delivery of services to ensure the care they receive truly responds to their realities.

ANC contacts are a key mechanism through which pregnant women and girls can receive counselling and support regarding nutrition recommendations. The postnatal period (first six weeks after delivery) is another critical window for safeguarding the health and well-being of both the mother and the newborn. According to the WHO (2022) *Recommendations on maternal and newborn care for a positive postnatal experience*,[15] this period requires close attention, yet it is often neglected in health systems globally. Nutrition is a central pillar of quality PNC; in particular, to support recovery from childbirth, breastfeeding, and prevention and management of nutritional deficiencies such as iron and/or calcium. For postpartum adolescent girls, the stakes are even higher, as adolescents are still growing themselves, and they are at greater risk of iron deficiency anaemia, undernutrition, and poor weight gain, all of which can delay recovery and compromise lactation. Furthermore, it is well established that PPPAGs are at increased risk for mental health disorders [16,17] – ANC/PNC are key opportunities to prevent and treat mental health disorders in PPPAGs.

According to the PDHS 2017-18, only 52% of pregnant women and girls aged 15-49 in Pakistan received a minimum of four ANC visits (while the WHO recommendation is for at least eight), and 62% of mothers received a postnatal checkup by a health professional within 2-days of delivery. Adolescents, especially those with lower socioeconomic status, are even less likely to access ANC/PNC despite the inherently high-risk nature of their pregnancies, however data is not segregated for pregnant adolescents in the PDHS. When pregnant adolescents do access care, they often lack the confidence to express their needs, face greater humiliation and disrespect, [4,18] and receive poorer quality care than adults.[19]

Group ANC/PNC models have emerged as promising modalities to support PPPAGs in low-and-middle-income countries (LMCs), with the potential to address adolescent clinical and psychosocial needs in a more youth-friendly way. When well facilitated, group ANC/PNC can enhance psychosocial support, knowledge sharing, peer bonding, and care engagement,[20] which are important elements for adolescents. In Pakistan, a group ANC model was piloted for pregnant women of all ages in Sindh province, followed by structured postnatal group meetings.[21] Although formal evaluation is pending, preliminary feedback suggests increased visit attendance, stronger peer support, and greater provider–client connection, showing real promise for improving maternal and newborn health outcomes. Yet again however, there is limited evidence around these models specifically for adolescent girls, both in Pakistan and globally, but pilot studies in Kenya, Nigeria, and the United States show that group care is associated with better communication, increased contraceptive uptake, and improved parenting confidence among adolescents.[22–24]

Pregnant adolescents are a nutritionally vulnerable group due to the combined demands of ongoing growth and pregnancy, with inadequate nutrition contributing to adverse maternal and birth outcomes. Compared with older women, adolescents face higher risks of complications such as preterm birth, low birth weight, and neonatal morbidity. MMS has been shown to improve birth outcomes among pregnant adolescents in low- and middle-income countries and is recommended for this age group. [25,26] In 2020, WHO published an update to its antenatal nutrition guidance on multiple micronutrient supplements (MMS) during pregnancy (a daily dose of 15 vitamins and minerals including iron and folic acid);[25] however, as with other maternal supplementation guidelines, recommendations are based primarily on studies of adult women.[13] Further, little is known about effective service delivery strategies specifically designed to support adolescent girls' adherence to recommendations including an eight-contact model ANC schedule, although group models of ANC show some promise.[27] Except for a few studies focusing on specific interventions for pregnant adolescents, most research utilizes segregated data from larger studies to draw their conclusions. According to a groundbreaking Lancet Series from 2023 titled *The Forgotten Girls*,[28] the routine exclusion of adolescents from maternal health research and implementation should be questioned by ethical review boards, health care systems are largely unequipped to deal with adolescent pregnancies, and there remains an urgent need to address the scarcity of intentionally designed research on adolescent pregnancies, particularly for the 10-14 age group.

GOVERNMENT OF PAKISTAN AND NUTRITION INTERNATIONAL'S WORK TO STRENGTHEN ROUTINE ANTENATAL AND POSTNATAL CARE IN SWABI DISTRICT

Nutrition International has been working with the Government of Pakistan on improving maternal nutrition programming since 2000, and in Swabi District since 2021 to support implementation research on MMS (2021-2025) and, the integration of MMS into the public health system (2021-ongoing). The AMMI Project aimed to identify effective implementation approaches for introducing antenatal MMS to replace IFA supplementation through ANC, and to inform sustainable transition and scale-up of MMS for pregnancy. The research examined feasibility, acceptability, cost-effectiveness, coverage, quality of care and counselling, as well as enablers and barriers to successful implementation.

The IGNIT3 Project in Swabi district (2024–2027) continues to support these efforts through the mainstreaming of MMS within routine services while pioneering adolescent-friendly ANC approaches to improve nutrition outcomes for pregnant women and pregnant adolescent girls.

This FR was conducted as part of IGNIT3. It was informed by a 2024 Nutrition International *Scoping Review of Antenatal Care Seeking and Delivery Practices for Pregnant Adolescent Girls in Pakistan* (herein referred to as "the Scoping Review" – to be published) which synthesized literature and 36 key-informant interviews and highlighted five intertwined key gaps in adolescent-friendly ANC/PNC delivery in Swabi:

1. Socio-economic and cultural barriers limit adolescents' autonomy and care-seeking.
2. Service-quality deficits such as infrastructure, supplies, and staff capacity undermine the delivery of adolescent-friendly care.
3. A paucity of global evidence leaves service providers without adolescent-specific ANC/PNC service delivery guidance and training.
4. Existing evidence and global guidelines subsume adolescents within the 15–49 year "women of reproductive age" group, precluding targeted policies, guidelines, and costed implementation plans.
5. Data systems, both globally and in Pakistan, rarely disaggregate indicators for adolescents, missing opportunities to identify inequities, engage in evidence-informed decision-making and planning, and apply the appropriate high-risk stratification to all adolescent pregnancies, as would be clinically appropriate.

Adolescent pregnancy rates in Swabi District remain high, making this an important context for understanding how to reach younger pregnant women and girls through ANC. The AMMI Project explored some aspects related to adolescent pregnancies (not yet published) which helped inform the design of this FR, including what age range HCPs considered to be an adolescent pregnancy ; whether care should be delivered differently to PPPAGs vs. older pregnant women; their levels of confidence to provide ANC to PPPAGs, disaggregated by age (10-14 years and 15-19 years); frequency with which a younger PPPAG (i.e. 10-14 years) are encountered in ANC; and, perceived need for specialized training on managing adolescent pregnancy care. These findings were drawn from data collected in March 2024 as part of a repeated cross-sectional survey. The HCP sample (n=261) comprised three categories of providers — facility-based Women Medical Officers (WMOs) and Lady Health Visitors (LHVs), and community-based Lady Health Workers (LHWs). In summary:

- HCPs interviewed classified the age range of pregnant adolescent as falling between 15 and 27 years of age.
- HCP confidence in providing ANC to pregnant adolescent girls varied by age group:
- 15–19 years: 97% of HCPs reported confidence providing ANC.
- 10–14 years: 82% of HCPs reported confidence in providing ANC.
- About 34% of HCPs reported having provided care to pregnant girls aged 10-14-year-olds in the last year.
- About 95% of HCPs expressed the need for specialized training on adolescent pregnancies.

Despite the high rate of adolescent pregnancy in KP Province (15% of girls aged 15-19 had begun childbearing according to the PDHS 2017-18), information on the quality of ANC/PNC services and related knowledge, attitudes, and practices (KAPs) remains limited for all women in Swabi District — a gap that is particularly acute for PPPAGs, for whom no age-disaggregated service quality data exist.

This FR therefore aims to qualitatively explore the KAPs of HCPs and PPPAGs' influencers and identify key barriers and opportunities to inform policy adaptation and service delivery recommendations, with the aim to make ANC more adolescent-friendly in Swabi District and beyond.

In Swabi District, the public health care system is managed by the District Health Office (DHO) under the provincial Department of Health and operates through a tiered structure. Primary care is delivered through Basic Health Units (BHUs) and Rural Health Centres (RHCs), while secondary care is available at Category C and D hospitals and the District Headquarters Hospital. At the facility level, LHVs and WMOs provide ANC/PNC services.

At the community level and as part of the broader public health system, LHWs provide health education, referrals, and basic maternal and child health services including provision of nutrition supplements, they are supported by Lady Health Supervisors (LHSs).

Community Midwives (CMWs) are government-trained and regulated but in KP they are not currently designated as government employees and charge a nominal fee for their services. They operate from home-based clinics rather than public facilities, particularly in underserved and rural areas. As skilled birth attendants, they deliver essential maternal, newborn, and reproductive health services at the community level though they are not fully integrated into the public health structure and formal referral linkages between CMWs and the facility-based system are limited.

The private health sector also plays a significant role in Pakistan, with an estimated 70% or more of the population accessing private health services. Women frequently access both public and private providers throughout their pregnancy journey.

1.2 Objectives of the formative research

The objective of this FR, arising from gaps identified in the accompanying Scoping Review and in consultation with the Government of Khyber Pakhtunkhwa and the DHO Swabi, was to generate evidence to guide the development of recommendations for government and service providers to support the tailoring of ANC/PNC delivery to adolescent girls in Swabi district and beyond. Specifically:

1. To understand HCPs' KAPs during provision of ANC/PNC, including nutrition services (i.e., MMS provision and counselling) to PPPAGs and if/how these vary by cadre.
2. To understand diverse experiences and the KAPs of PPPAGs in Swabi District related to:
    1. ANC/PNC access, including contact accompaniments, peer to peer influencing, provider and facility characteristics, and previous experience.
    2. Care seeking, including factors that influence or hinder initiation and consistency of ANC/PNC attendance.
    3. Adherence to ante- and postnatal nutrition recommendations, including MMS consumption, diet, and intent of or experience with breastfeeding.
3. To explore practical considerations to increase adolescent engagement in care-seeking and adherence to nutrition recommendations during pregnancy, including group ANC/PNC models.
4. To generate an understanding of the families of PPPAGs' perceptions, objections, motivations, and opportunities for improving repeated access to quality ANC/PNC for PPPAGs and adherence to nutrition recommendations.
5. To understand the gender norms, social influences, and intersecting identities that may impact adolescents' ability to seek and implement recommendations (i.e., early and consistent ANC contacts, take MMS every day, etc.) and identify any related risks.

Together, the scoping review and the formative research provide complementary evidence to inform the development of adolescent-friendly ANC/PNC recommendations and programmatic strategies.

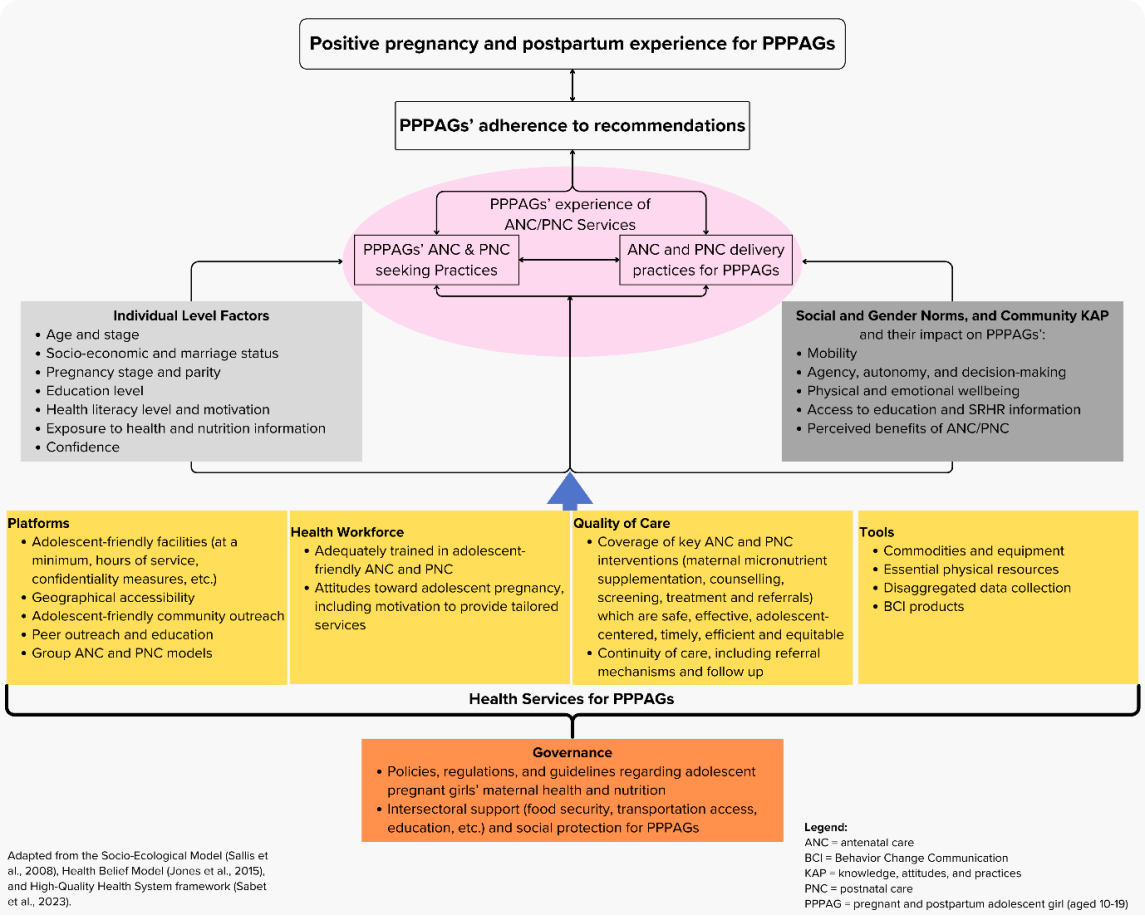
1.3 Conceptual and analytical framework

To capture the multiple factors shaping PPPAGs' engagement with ANC/PNC services in Swabi, an integrated conceptual and analytical framework was developed, modelled on three established models and an existing framework:

1. Health Belief Model (HBM):[29] Elements taken from the HBM focus on individual perceptions; for example, how PPPAGs view their risk of complications, the benefits of ANC/PNC and maternal micronutrient supplementation, barriers to care (e.g., cost, stigma), and their motivation and confidence to act.
2. Socio-ecological Model (SEM):[30] Elements taken from the SEM highlight how care-seeking is influenced by relationships (family, peers), community norms (mobility, gender roles), organizational factors (facility accessibility), and the broader policy environment.
3. High-Quality Health System Framework for Pregnant Adolescents:[28] Elements taken from the High-Quality Health System framework can be used to assess the readiness of the health system to serve PPPAGs, including the availability of adolescent-friendly services, skilled providers, quality and respectful care, and supportive infrastructure.

By integrating selected elements from each model and framework, the proposed adapted framework can be used to assess factors linking individual beliefs and behaviors, social and gender norms, service delivery, and governance as they pertain to care-seeking and delivery of ANC/PNC for PPPAGs, as well as adherence to recommendations for PPPAGs. The adapted framework (Figure 1: *Simplified and adapted framework for assessing ANC/PNC delivery, seeking and adherence practices*, or PPPAGs ANC/PNC framework for short) informed the FR design and data analysis and will be used to guide ensuing recommendations for adolescent-friendly ANC/PNC in Swabi.

FIGURE 1 : Simplified and adapted framework for assessing ANC/PNC delivery, seeking and adherence practices for pregnant and postpartum adolescent girls [PPPAGs ANC/PNC framework]



2. Methods

2.1. Study design and setting

This FR used a qualitative study design, primarily informed by a phenomenology approach to explore individual, social, and systemic factors shaping ANC/PNC-seeking behaviors, HCP KAPs, and determinants of PPPAGs' adherence to recommendations in Swabi District, KP province, Pakistan, as per the PPPAGs ANC/PNC framework (please see Figure 1). The design of this FR, including its analytical framework, tool and sampling strategy development, and recommendations, was guided with the aim of improving adolescent-friendly ANC/PNC service delivery in Swabi District and beyond. Elements of adolescent-responsiveness were also incorporated, especially in the tool development process, to better understand the maternal health and nutrition needs of this particularly vulnerable and understudied group.

Swabi District consists of four tehsils and 56 Union Councils (UCs), covering both urban and rural[1] areas. Health service delivery is organized through a tiered public health system that is designed to link community-based outreach with primary, secondary, and tertiary care. Primary ANC and PNC services are delivered through BHUs, RHCs, and Maternal and Child Health Centres. Cases requiring higher-level management are referred to secondary-level facilities, including Category C and Category D hospitals and the District Headquarters Hospital, while specialized care is available through the Medical Teaching Institution. This referral structure provides the platform for the delivery and escalation of maternal and newborn health and nutrition services across the district.

2.2. Sampling and recruitment

Nutrition International leveraged the structure from the AMMI Project to inform this FR's sampling strategy. The AMMI Project implemented MMS as the standard of care for prevention of anaemia as part of ANC across all public health facilities and through the LHW network in 56 UCs in Swabi District, but excluded the private sector and CMWs. Within the AMMI Project, a cluster randomizedcontrolled trial (c-RCT) was conducted across 24 UCs (12 intervention and 12 control). All 24 RCT UCs were excluded from this FR's sampling to avoid confounding with the trial's interventions, referred to as "non-RCT UCs" throughout this document. Programmatic monitoring data from the remaining 32 non-RCT UCs was used to inform site selection for this FR.

Four respondent groups were targeted: (1) PPAGs who had given birth in the last 11 months, aged 10-19 years, split into 10-14 and 15-19 age groups;[2] (2) HCPs responsible for the delivery of ANC/PNC in Swabi District across public and private settings in all types of health centers (i.e., LHWs, LHSs, LHVs, WMOs in the public system, and CMWs providing home-based/community care outside the public facility structure); (3) key familial PPPAG influencers (husbands, MILs, guardians of PPPAGs); and, (4) school teachers and administrators across private and public educational settings.

A sample size of eight UCs (two per tehsil) was set to ensure district- and tehsil-wide representation, with an aim to ensure data collection activities in both urban and rural settings. The UCs were selected based on PAGs were registered as receiving MMS through public ANC services across Swabi District, according to project monitoring data from AMMI. It should be noted that this data source captures PAGs who received MMS and may not represent all PAGs registered for ANC. First, programmatic monitoring data from the AMMI project (July 2024-February 2025) were used to identify each non-RCT UC with the highest monthly number of PAGs registered for ANC in the community and in health facilities. These two values (community and facility-based counts) were combined to estimate the PAGs caseload in each UC, with duplicates removed. Initially, the highest caseload UCs were identified regardless of tehsil, but this approach risked over-representing certain geographic areas; for example, Tehsil Razar had a considerably higher registered caseload of PAGs according to AMMI

[1] The rural/urban classification is determined by the Local Government Department, Government of Khyber Pakhtunkhwa, often in consultation with the Bureau of Statistics and based on census data.
[2] The decision to split PPPAGs into two distinct groups was based on the WHO's guidance around adolescent "age and stage", which refers to the idea that an adolescent's needs abilities, experiences, and risks vary depending on their age and on their developmental stage (i.e., physical, cognitive, emotional and social maturity). Additionally, the 10-14 range of adolescents are notoriously understudied particularly regarding maternal health.

monitoring data.[3] To resolve this, one additional non-RCT UC was selected from each of the four tehsils with the next highest number of PAGs. More UCs in the sample are rural than urban due to the population distribution of Swabi District. Please see Table 1 for an overview of the final eight selected UCs, including six rural and two urban.

After the final selection of UCs, data collection sites (i.e., health facilities and their corresponding community outreach catchment areas) were chosen. Initially, using DHIS data (Jan-Oct 2024), a strategy was explored to classify facilities as high- or low-performing based on the difference between first ANC contact and follow-up ANC visit rates. However, this strategy was abandoned because of data-quality issues, such as revisit rates above 100%, no age disaggregation, and the limited number of facilities in some UCs. Instead, caseload numbers of PAGs per facility were used to select facilities. In cases where multiple facilities had similar PAG counts, factors such as facility type (e.g., BHU, RHC, secondary hospitals) and location (central vs. peripheral) guided the final selection to ensure diverse service delivery contexts were represented. This adjustment helped avoid concentrating too much data collection in any tehsil and supported balanced representation across the district.

As shown in Table 1, the initial eight UCs selected were: Kalu Khan (urban) and Yar Hussain West (rural) in Tehsil Razar; Saleem Khan (rural) and Swabi Khas (urban) in Tehsil Swabi; Jalbai (rural) and Beka (rural) in Tehsil Lahor; Gabsani (rural) and Zarobi (rural) in Tehsil Topi.

TABLE 1: Initial study sites by tehsil (pre-pilot selection)

Tehsil	UC 1	UC Type	Health Facility (UC 1)	UC 2	UC Type	Health Facility (UC 2)
Razar	Kalu Khan	Urban	Cat D Hospital Kalu Khan	Yar Hussain West	Rural	Cat D Hospital Yar Hussain
Swabi	Saleem Khan	Rural	BHU Saleem Khan	Shah Mansoor	Rural	Bacha Khan Medical Complex
Lahor	Jalbai	Rural	BHU Jalbai	Jehangira	Rural	BHU Beka
Topi	Gabsani	Rural	BHU Gabsani	Topi East	Urban	Cat C Hospital

Due to a security concern reported in Jalbai during pilot-testing, it was replaced by Tarakai (Razar), which had the next-highest PAG caseload, is rural, and in the same tehsil. Due to concerns about being able to recruit enough PPPAGs, and to maintain geographic balance and strengthen the sample, Shewa, a high PAG caseload rural UC in Razar, was also added. The final eight UCs are presented in Table 2.

TABLE 2: Final study sites by tehsil (post-pilot revisions)

Tehsil	UC	UC Type	Health Facility
Razar	Kalu Khan	Urban	Cat D Hospital Kalu Khan
	Tarakai	Rural	BHU Tarakai
	Yar Hussain West	Rural	Cat D Hospital Yar Hussain
	Shewa	Rural	RHC Shewa
Swabi	Saleem Khan	Rural	BHU Saleem Khan
Lahor	Jehangira	Rural	BHU Jehangira
		Rural	Dr. Mujeeb's Clinic (private)
Topi	Gabsani	Rural	BHU Gabsani
	Topi East	Urban	Cat C Hospital
	Topi East	Urban	Shahkar Medical Center (private)

Within these UCs, the study focused on public health facilities (BHUs, RHCs and Cat C/D hospitals) with the largest PAG caseloads. To reflect private-sector practices, two private facilities were purposively selected based on their location within the study UCs and their known provision of ANC

[3] It is important to note that this registered caseload only represents registration with the public health system and may not reflect true numbers of PAGs living across Swabi District.

services to PAGs: Shahkar Medical Center in Topi East and Dr. Mujeeb's Clinic in Jehangira. Selection was informed by local knowledge from the IGNIT3 project team and district health staff.

Teachers and school staff were also recruited with the aim to identify barriers and opportunities to improve age-appropriate awareness of the importance of maternal nutrition and timely ANC/PNC, as well as possible referral opportunities for early ANC for PAGs, and to better understand the impacts of pregnancy and marriage on girls' education. Teachers and school administrators were purposively selected from girls' schools located within the high PAG caseload catchment areas of the selected UCs were mapped. Urban-rural representation and relevant ages of enrollment were considered (i.e., grades 6-12, roughly 11-19 years). This led to the inclusion of four Government Girls Higher Secondary Schools (GGHSS), including in UCs Kalu Khan, Shewa, Jehangira, and Topi East and one nearby private girls' school in Kalu Khan, reflecting the areas where PAGs are most likely to be enrolled.

Respondents were purposively selected based on the following inclusion and exclusion criteria:

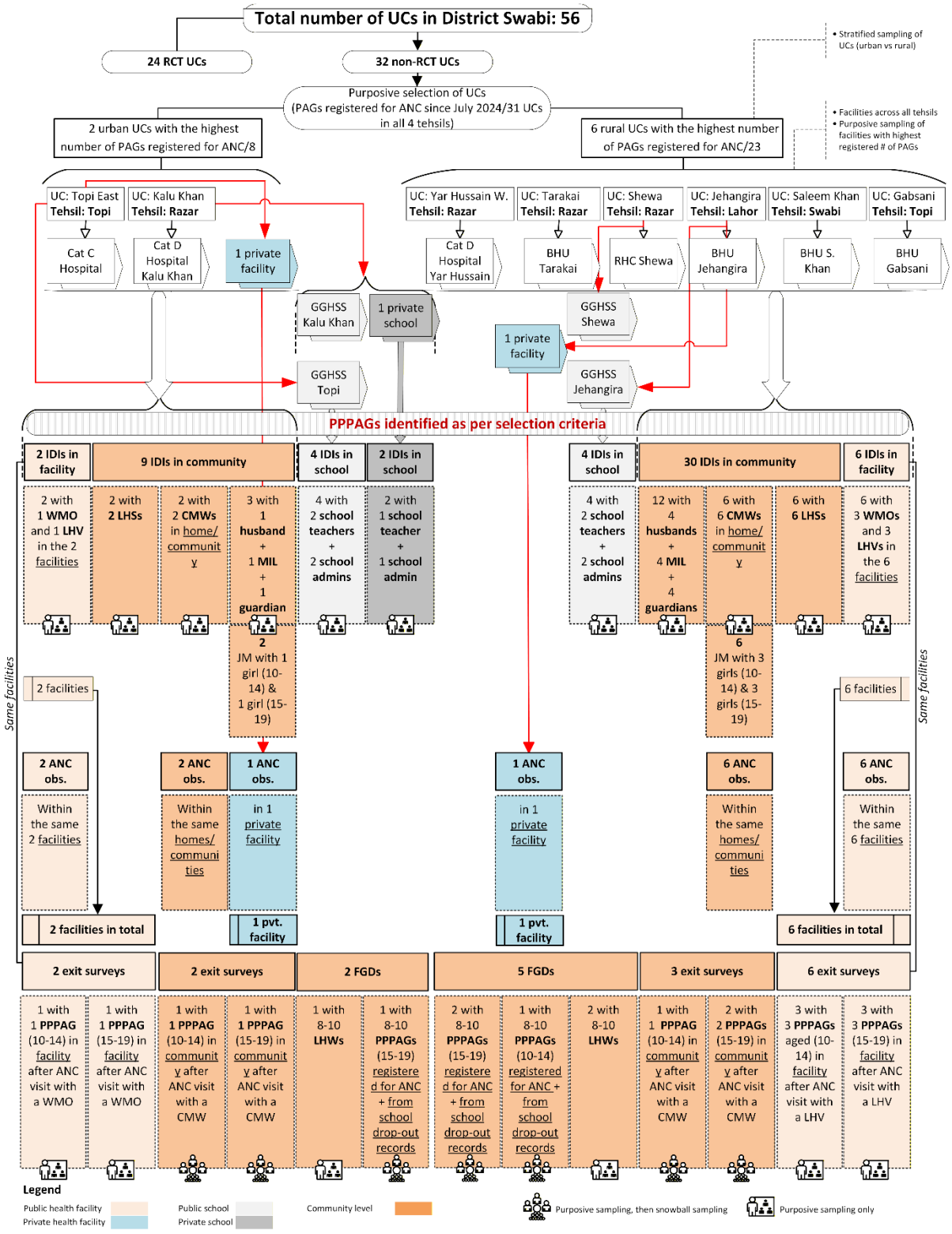
- Adolescent girls aged 10-19 who were currently pregnant at the time of data collection or up to 11 months postpartum, confirmed through clinical records or, when official documents were unavailable, through an age estimation process [4] integrated into the consent procedure. The study team aimed to disaggregate recruitment for PPPAGs' in-depth interviews (IDIs) and focus group discussions (FGDs) by age group (10-14 and 15-19).
- HCPs responsible for the community- and facility-based provision of ANC/PNC in Swabi District (LHSs, LHWs, LHVs, and WMOs), registered with public facilities and those providing home-based care (CMWs).
- Relevant familial/household influencers (husbands, MILs, and guardians of the PPPAGs).
- Teachers and administrators (sampled as pairs) qualified if working in GGHSS and private schools within selected UCs.
- All respondents resided in Swabi District but outside AMMI RCT UCs and provided informed consent (and assent plus guardian consent for minors).
- Excluded were individuals not meeting the age, pregnancy/postpartum status, or residence criteria, those unwilling to participate or receive/obtain the necessary consent, or living in AMMI RCT study area (intervention and control arms inclusive).

PPPAGs were identified through facility- and community-based ANC records using the MMS registers and community outreach, with snowball sampling used to reach additional participants. HCPs (LHSs, LHWs, LHVs, WMOs) and key familial/household influencers were recruited through facility records and participant referrals, while teacher and administrator duos were purposively selected for their roles within the education system relevant to adolescent health curriculum and ages taught. For CMWs, recruitment was done through coordination with the DHO and local supervisors, who helped identify CMWs working in the selected UCs. The study team then contacted those CMWs directly to invite them to participate. This approach aimed for triangulation of perspectives across facility, community, household, and individual levels.

Please see diagram below (Figure 2) for a visual representation of the sampling strategy.

[4] When a PPPAG had no ID or birth certificate, the interviewer simply asked her (and any parent present) to link her birth to well-known (e.g., 2014 Army Public School attack, 2010 floods, Benazir Bhutto's assassination in 2007), and seasonal or religious markers (e.g., wheat harvest, Ramadan). Matching two of these memories usually narrowed down the birth year, and the interviewer noted the answers without pressuring anyone.

FIGURE 2: Sampling strategy overview



2.3. Data collection and quality assurance

Data collection tools were designed and refined based on the study objectives and the PPPAGs ANC/PNC Framework (Figure 1). Data collection types included IDIs, FGDs, journey mapping interviews (JM),[5] ANC observations, and ANC exit interviews, with the corresponding tools tailored to the different respondent groups. All tools were then translated into Urdu, culturally adapted, and cross-checked with the English (original) versions to ensure intention and meaning were retained. A two-day pilot was conducted in Marghuz, a non-RCT UC with one of the highest numbers of recorded PAGs (as per AMMI monitoring data) but not included in the sampling strategy. A summary of the pilot activities is presented in Table 3.

TABLE 3: Summary of pilot testing activities

Tool	Data Collection Type	# of pilots	Notes
1	IDIs for husbands, MILs, guardians/parents	2	1 MIL and 1 mother of a PPPAG
2	IDIs for school administrators	1	GGHSS Marghuz
3	IDIs for teachers	1	GGHSS Marghuz
4	IDIs for LHVs/WMOs (facility-based ANC/PNC providers)	2	1 LHV and 1 WMO
5	IDIs for CMWs (home-based, community-based ANC providers)	2	RHC Marghuz
6	IDIs for LHSs (public, community-based supervisors)	1	RHC Marghuz
7	JM of PPPAGs	2	PPPAGs (15-19)
8	FGDs with PPPAGs	1	Piloted with 1 group of 8 PPPAGs (15-19)
9	FGDs with LHWs (community-based ANC/PNC providers)	1	Piloted with 1 group of 10 LHWs
10	Observation of facility-based ANC	1	RHC Marghuz
11	Observation of community-based ANC split amongst cadre types	1	UC Marghuz
12	Exit interviews with PAGs receiving facility-based ANC	1	RHC Marghuz
13	Exit interviews with PAGs receiving community-based ANC	1	UC Marghuz

Following pilot testing by five field supervisors, the data collection tools were refined based on feedback that some questionnaires were too long or asked questions which were too sensitive. The English tools were shortened, reworded for clarity and to alleviate sensitivity concerns, and then re-translated into Urdu. Final versions were cross-checked to ensure the intended meaning was preserved before field use. The core field team, comprising 10 Pashto-speaking female enumerators and a female supervisor, with support from male coordinators and Nutrition International staff, received two days of training on the tools, informed consent, ethics, and safeguarding. Simulation exercises helped prepare teams for adolescent-sensitive interviews. Daily spot checks, debriefings, and close supervision helped ensure consistent application of protocols.

Data were collected face-to-face across the eight UCs in Swabi District between from April 14 to May 7, 2025, using the data collection tools and methodologies with the respondent groups described above. Sessions were held in private, audio-recorded with consent, and followed strict ethical and safeguarding protocols.

As summarized in Table 4, a total five FGDs were conducted: two with PPPAGs (15-19 years) and three with LHWs (urban and rural). Planned FGDs with younger adolescents (10-14 years) could not be completed due to recruitment constraints and parental permission barriers.[6] In response, these FGDs

[5] Journey mapping is the process of investigating an individual's interactions, thoughts, emotions, challenges, and needs as they go through a particular journey — such as accessing healthcare, using a service, or navigating a program.

[6] It is unclear whether the inability to recruit the planned number of 10–14-year-old PPPAGs for this study was based on low numbers existing in the target UCs, or if they just weren't registered in the health system. Based on the study data across the interviewed health cadres, HCPs reported encountering between one to three adolescent pregnant girls daily in facilities, and five to 20 adolescent cases per month in community-based settings. Record reviews by LHSs indicate adolescent pregnancies constitute approximately two to eight percent of all pregnancies in Swabi District. However, the data refers to 10–19-year-olds and is not disaggregated between 10-14 and 15-19; we can assume the percentage of 10–14-year-old PPPAGs within this two to eight percent of all pregnancies is low. There is also the possibility that because the legal age of marriage is 16 in Swabi District, families may overstate the age of a PAG and/or refuse to allow her to enter the study. Enumerators used age verification methods as described in the Methods section as much as possible when recruiting PPPAGs.

were replaced with IDIs across PPPAG age groups (i.e., 10-14 and 15-19), with attempt to recruit as many 10-14 year old PPPAGs as possible.[7] In the end, only two PPPAGs from the 10-14 age group were included in the sample. In total, 67 IDIs were conducted with PPPAGs (including eight JMs), their familial/household influencers, and HCPs at facility and community levels. Observations were conducted at 18 ANC delivery points, including public facilities, private clinics, and community sites. Exit interviews were completed in 13 locations as per the sampling strategy (Figure 2 and Table 4) to capture PAGs' feedback on provider communication and perceived service quality. At each selected facility or community site, data were collected during the same ANC visit, starting with observation of the ANC contact, followed by an IDI with the HCP, and then an exit interview with the same PPPAG. This approach allowed direct triangulation of observed practice, HCP perspective, and PPPAG experience.

Several adjustments were required in the field. Two planned CMW interview sites were shifted to neighbouring UCs due to staff unavailability, and one facility observation in private clinic moved from Jehangira to Saleem Khan after a provider declined participation on the day. Despite these challenges, data collection was successfully completed across all respondent groups and in eight public facilities, two private clinics, and eight community sites, as summarized in Table 4.

TABLE 4: Summary of data collection activities by respondent type and data collection activity

Respondent Type	Tool	Planned	Achieved	UC (Tehsil)	Notes
PPPAGs (aged 15-19)	IDIs	0	4 urban	Topi East (Topi); Kalu Khan (Razar)	Conducted as replacements for FGDs (with age 15-19 yrs; not able to identify girls 10-14 yrs)
		0	6 rural	Yar Hussain West, Shewa, & Tarakai (Razar); Jehangira (Lahor); Saleem Khan (Swabi); Gabsani (Topi)	
JM with PPPAGs	IDIs	2 urban	2 urban	Topi East (Topi); Kalu Khan (Razar)	6 aged 15-19 yrs, and 2 aged 10-14 yrs
		6 rural	6 rural	Yar Hussain West, Shewa, and Tarakai (Razar); Jehangira (Lahor); Saleem Khan (Swabi); Gabsani (Topi)	
Family members (guardians of PPPAGs, husbands, MILs)	IDIs	3 urban	3 urban	Topi East (Topi); Kalu Khan (Razar)	5 per respondent type: 4 rural and 1 urban per category
		12 rural	12 rural	Yar Hussain West, Shewa, and Tarakai (Razar); Jehangira (Lahor); Saleem Khan (Swabi); Gabsani (Topi)	
School administrators and teachers	IDIs	6 urban	6 urban	Topi East (Topi); Kalu Khan (Razar)	5 schools (4 public, 1 private in Kalu Khan). 1 teacher-admin duo per school
		4 rural	4 rural	Jehangira (Lahor); Shewa (Razar)	
LHVs	IDIs	1 urban	1 urban	Kalu Khan (Razar)	
		3 rural	3 rural	Saleem Khan (Swabi); Jehangira (Lahor); Shewa (Razar)	
WMOs	IDIs	1 urban	1 urban	Topi East (Topi)	
		3 rural	3 rural	Gabsani (Topi); Yar Hussain West (Razar); Tarakai (Razar)	
LHSs	IDIs	2 urban	2 urban	Topi East (Topi); Kalu Khan (Razar)	1 per UC in sampling strategy
		6 rural	6 rural	Jehangira (Lahor); Gabsani (Topi); Saleem Khan (Swabi); Yar Hussain West, Tarakai and Shewa (Razar)	
CMWs	IDIs	2 urban	2 urban	Topi East (Topi); Kalu Khan (Razar)	
		6 rural	6 rural	Swabi Khas (Swabi); Jehangira and Jalbai (Lahor); Gabsani (Topi); Tarakai and Shewa (Razar)	Substitutions made: Jalbai for Yar Hussain West and Swabi Khas for Saleem Khan
PPPAGs (aged 10-14)	FGDs	1 rural	n/a		Not completed due to difficulty in recruiting this age group
PPPAGs (aged 15-19)	FGDs	1 urban	n/a		Urban FGD canceled due to permission barriers and replaced with IDIs

[7] A new tool was developed to support this pivot from FGDs to IDIs. Due to time constraints, this new tool was not piloted. However, learnings from the previous piloting were integrated into the tool development.

		2 rural	2 rural (n=18)	Tarakai and Yar Hussain West (Razar)	
LHWs	FGDs	1 urban	1 urban (n=8)	Kalu Khan (Razar)	
		2 rural	2 rural (n=18)	Yar Hussain W (Razar); Jehangira (Lahor)	
ANC service delivery points with PPPAGs	Obser-vations	5 urban	5 urban	Kalu Khan (Razar); Topi East (Topi)	8 public facilities with WMOs and LHVs, 8 community sites with CMWs, and 2 private clinics (Adiba Rani maternity Clinic [Saleem Khan][8] & Shahkar Medical Center [Topi East]).
		13 rural	13 rural	Saleem Khan (Swabi); Jehangira (Lahor); Gabsani (Topi); Yar Hussain W, (Tarakai); and Shewa (Razar)	
PPPAGs post-ANC contacts (aged 10-14)	Exit surveys	2 urban	n/a		Not completed due to difficulty in recruiting this age group.
		4 rural	n/a		
PPPAGs post-ANC contacts (aged 15-19)	Exit surveys	2 urban	3 urban	Topi East (Topi); Kalu Khan (Razar)	8 facilities and 5 community sites
		5 rural	10 rural	Saleem Khan (Swabi); Jehangira (Lahor); Gabsani (Topi); Yar Hussain West, Tarakai; and Shewa (Razar)	
		95	**103**		

2.5. Data analysis procedures

A two-step data entry process was followed to ensure accuracy. First, data from the paper field forms were entered into a primary Excel sheet. Next, the audio recordings were transcribed verbatim into English, and those transcripts were added to the same file for analysis to capture additional details. All transcripts were anonymized, coded, and reviewed carefully for consistency. FGDs were recorded without names (participants provided a corresponding alphabetical letter for distinguishing purposes at beginning of the FDG, e.g., Participant A) to protect confidentiality.

Three trained translators fluent in Pashto, Urdu, and English translated the recordings from Pashto to Urdu. One additional translator, fluent in Urdu and English, then translated those transcripts into English. All team members were oriented on the study objectives, ethical standards, and key terms before beginning their tasks. To maintain consistency across steps, daily coordination, shared glossaries, standard file naming, and direct communication were used.

Quality assurance was embedded at each stage of the data processing pipeline. A separate bilingual reviewer (fluent in Pashto, Urdu, and English) conducted quality checks on random transcript samples at each stage (Pashto to Urdu, and Urdu to English), comparing translated content against the original audio recordings. Any discrepancies or unclear terms were discussed and resolved in consultation with translators and the core research team. Certain culturally specific terms (i.e., “foods with hot effects”, “strength pills”) had no direct English translations; to address this, original terms with brief explanations were retained to preserve meaning. This approach helped ensure that the final English transcripts accurately reflected participants’ voices and were ready for reliable thematic analysis.

Thematic analysis was guided by the PPPAGs ANC/PNC Framework (Figure 1). A structured coding matrix in Excel was used, combining deductive codes drawn from study objectives and the PPPAGs ANC/PNC Framework, with inductive codes emerging from transcript and field form review. Two analysts independently entered and reviewed data, one using completed field entries and the other using transcripts, to identify and refine emerging themes. Recurring patterns, such as limited privacy, facility workload, inadequate infrastructure, and gaps in provider behavior, were grouped under broader categories. Themes were discussed internally, refined through joint review, and documented in a consolidated coding matrix used to structure findings. Themes were then compared across respondent groups and settings to identify both common and divergent perspectives. Findings are presented by respondent type and setting in the report to reflect these differences. To strengthen

[8] Despite having prior consent from the healthcare provider in Jehangira, the HCP refused to participate in the observation activity upon the arrival of our team, stating that she had a high patient load and could not spare the time. Even when the team offered to return the next day, she still declined. As a result, with Nutrition International’s approval, the observation was conducted at Adiba Rani Maternity Clinic, a private facility in UC Saleem Khan.

reliability, findings were triangulated across sources and participant quotes are used to support analyses. Final write-ups were reviewed internally to ensure clarity, accuracy, and relevance for informing adolescent-friendly ANC/PNC programming recommendations.

2.6. Ethical and safeguarding considerations

The study was approved by the Health Services Academy ethical review board based in Islamabad, Pakistan and was carried out in accordance with Nutrition International's Child Safeguarding Policy.[9] Letters of support and No-Objection Certificates were obtained from the Home and Tribal Affairs Department, DHO,[10] and District Education Office before data collection began.

Written consent was collected from all adults. PPPAGs gave assent, along with consent from a parent or guardian. The study's purpose, voluntary nature, and confidentiality measures were explained in Pashto. A few households declined participation, especially in Kalu Khan and Topi East. Their decisions were respected.

Interviews were held in private settings. Audio files and transcripts were anonymized using unique codes and stored on a password-protected hard drive and on Nutrition International's restricted SharePoint. Access was limited to the core research team and temporary staff for transcription or translation. All files will be deleted within two years of analysis completion.

Data collection was led by ten female Pashto-speaking enumerators, supported by a female supervisor, male field coordinators, and Nutrition International district staff. The team was equipped to engage sensitively with adolescent participants, applying the principles covered during their preparatory sessions on ethics, consent, and safeguarding. During fieldwork, enumerators remained attentive to any signs of discomfort and followed clear referral protocols when necessary. Daily check-ins and field supervision helped ensure that all interactions were conducted respectfully and in line with ethical commitments and local norms.

[9] Ethical approval was granted by the Health Services Academy, Islamabad (Ref: No. 7-82/IERC-HAS/2022-115 (10th November 2024).
[10] No-Objection Certificates was obtained the DHO, KP (Ref: No. SO (NGOs/NPOs)/HD/7-3/MV/NI/2024 (27th January 2025).

3. Findings

Across eight public health sector facilities, two private clinics and eight community sites in Swabi District, the FR completed 103 qualitative data collection activities, comprising five FGDs, 67 IDIs (including eight JM), 13 exit interviews, and 18 observations. These findings have been organized according to the PPPAGs ANC/PNC framework (Figure 1).

3.1. Individual-Level Factors Shaping PPPAGs' Adherence to Antenatal and Postnatal Health and Nutrition Recommendations

This section explores the individual-level factors that shape PPPAGs' adherence to antenatal and postnatal health and nutrition recommendations in Swabi District, KP. Drawing primarily on IDIs with 10 PPPAGs, journey mapping (JM) data, and FGDs, the analysis examines sociodemographic characteristics, health literacy and sources of information, patterns of adherence to micronutrient supplementation and dietary advice, self-efficacy and confidence in care-seeking, and care-seeking journeys. Together, these factors illuminate both the enablers and barriers that shape how PPPAGs engage with—and act upon—ANC/PNC recommendations.

3.1.1. SOCIODEMOGRAPHIC CHARACTERISTICS OF PPPAGS

Sociodemographic data were collected from 28 PPPAGs across two data collection methods: 10 through IDIs and 18 through FGDs.

The data from 10 PPPAGs who participated in IDIs reveal a consistent pattern of early marriage, disrupted education, and limited autonomy. All were married by age 17, with the majority (80%) between ages 16 and 17 and two (20%) at age 15 or younger. Most (80%) had dropped out of school, and seven (70%) had one child or no previous live birth. The majority accessed ANC through BHUs (40%) and Category D Hospitals (30%). Table 5 provides an overview of the key characteristics of the 10 PPPAGs who participated in IDIs.

TABLE 5: Sociodemographic characteristics of PPPAG participants in the IDIs (n=10)

Data Collection Type	n (%)
Total PPPAGs	**10**
Pregnancy/postpartum status	
Pregnant at time of interview	4 (40%)
Postpartum (within last 11 months)	6 (60%)
Age at marriage	
≤15 years	2 (20%)
16–17 years	8 (80%)
≥18 years	0 (0%)
Education	
Dropped out of school	8 (80%)
Completed secondary school	1 (10%)
Continuing education after marriage	1 (10%)
Parity	
More than 1 child (≥2)	3 (30%)
One child or no previous live birth (0–1)	7 (70%)
Source of ANC services	
Category C Hospital	2 (20%)
Category D Hospitals	3 (30%)
Rural Health Centre (RHC)	1 (10%)

Basic Health Units (BHUs)	4 (40%)

Among the 18 PPPAG FGD participants, most who reported their age at marriage (55.6%) were married between 16 and 17 years, and over half (55.6%) had two or more children. More than half (55.6%) were pregnant at the time of the FGD. All had dropped out of school. ANC was accessed equally through Category D Hospitals and BHUs (50% each). Table 6 presents their full sociodemographic profile.

TABLE 6: Sociodemographic characteristics of PPPAG participants in the FGDs (n=18)

Data Collection Type	n (%)
Total PPPAGs	**18**
Pregnancy/postpartum status	
Pregnant at time of interview	10 (55.6%)
Postpartum (within last 11 months)	2 (11.1%)
Not reported	6 (33.3%)
Age at marriage	
≤15 years	2 (11.1%)
16–17 years	10 (55.6%)
≥18 years	2 (11.1%)
Not reported	4 (22.2%)
Education	
Dropped out of school	18 (100%)
Completed secondary school (No reported)	-
Continuing education after marriage (No reported)	-
Parity	
More than 1 child (≥2)	10 (55.6%)
One child or no previous live birth (0–1)	2 (11.1%)
Not reported	6 (33.3%)
Source of ANC services	
Category D Hospitals	9 (50%)
Basic Health Units (BHUs)	9 (50%)

3.1.2. HEALTH LITERACY AND EXPOSURE TO INFORMATION

Sources of ANC/PNC Awareness

PPPAGs' awareness of ANC varied. Among the 10 IDI participants, five reported some prior awareness of ANC before or early in pregnancy, while the remaining five had no prior knowledge. For those with awareness, sources included prior pregnancy experience, guidance from female family members (mothers, MILs, and female relatives), and information from friends. Health care providers were mentioned less frequently as the initial source of awareness:

"Yes, I was aware because I had been pregnant before, and my mother had told me about antenatal care, as well as the doctor and the lady health worker.", (Postpartum adolescent, 18, Jehangira, Lahor)

"I learned about antenatal care from my friends and female relatives, and the doctor also used to explain", (Pregnant adolescent, 18, Yar Hussain West, Razar)

"Yes, I was aware. Family members also used to say to take care, and I also knew some things myself. I learned about antenatal care from my friends and female relatives.", (Postpartum adolescent, 18, Yar Hussain West, Razar)

For many PPPAGs, awareness of ANC emerged mid-pregnancy, typically after guidance from family members particularly their mothers and MILs rather than health workers. While health care providers were mentioned, family support was the more common source of information, highlighting adolescents' dependence on their families for vital health knowledge:

"No, I got to know about [ANC] later when the doctor and family members (MIL and paternal aunt, who is my sister-in-law as well) told me. The doctor told me not to do any work and to take care of myself.", (Pregnant adolescent, 18 years, Jehangira, Lahor)

"No, I wasn't aware [prior]. *However, from the beginning of the pregnancy, my family would talk about ANC and guide me. My family is supportive.",* (Pregnant adolescent, 19 years, Kalu Khan, Razar)

"No, I didn't know anything about ANC. I had never heard anything about it from anyone.", (Pregnant adolescent, 17 years, Tarakai, Razar)

3.2. Social and gender norms' impact on care-seeking and delivery

This section examines how social and gender norms and KAPs within families and communities in Swabi District shape the experiences of PPPAGs, particularly in relation to PPPAGs' mobility, decision-making, and autonomy in accessing ANC/PNC. Drawing from the perspectives of PPPAGs, their husbands, MILs, parents, schoolteachers and administrators, and HCPs in Swabi District, this section highlights how prevailing cultural expectations, such as regard for elders' choices, norms around female mobility, and gendered household power dynamics, can limit PPPAGs' agency in health-related matters. It explores the dynamics of who makes decisions about care, how families' beliefs influence care-seeking behavior, and the impact of these dynamics on timely and equitable access to maternal health and nutrition services. The section also analyzes HCPs' and PPPAGs' perceptions of the benefits of ANC/PNC and how these perceptions influence care-seeking and delivery.

3.2.1. MOBILITY CONSTRAINTS AND ACCESS BARRIERS

Across communities in Swabi District, there is a strong consensus that PPPAGs should not seek ANC/PNC services without a family member. The requirement for accompaniment was framed by respondents in terms of both physical vulnerability and cultural expectation, with mobility restrictions applying broadly to women but often compounded for PPPAGs by their younger age and perceived inexperience.

Accompaniment Norms

Mobility of PPPAGs is also impacted by cultural norms and social expectations, including when it comes to attending ANC/PNC appointments on their own. Across communities, there is a strong consensus that PPPAGs should not seek ANC/PNC services without a family member. As one MIL firmly stated when discussing girls attending appointments on their own:

"No, absolutely not; it is against our traditions.", (MIL, Yar Hussain West, Razar)

This sentiment was echoed by other family members who emphasized the necessity of accompaniment:

"…she cannot go alone. Someone from the house will accompany her. There's no need for regular visits, but if necessary, a woman from the house will go with her.", (Husband, Kalu Khan, Razar)

"No, in our family, young girls are not allowed to go alone for health checkups. Someone from the family must accompany them.", (Mother of PPPAG, Jehangira, Lahor)

The underlying motivations for accompaniment vary; sometimes reflecting supportive caregiving, but more often driven by social norms that restrict adolescent girls' independent mobility. When asked about accompaniment during ANC/PNC:

"Absolutely not; it is against our traditions. Even if permission is given, our customs and community norms do not accept it.", (MIL, Kalu Khan, Razar)

"No, absolutely not. Because they are sick and problems may arise on the way.", (Husband, Yar Hussain West, Razar)

"No, our men don't allow that. Someone must accompany them.", (Mother of PPPAG, Gabsani, Topi)

In more conservative households, deeply entrenched gender norms limited girls', and even elder women's mobility:

"We don't allow our women to go outside the house.", (Husband, Kalu Khan, Razar)

"I can't participate as I am not permitted from home.", (MIL, Saleem Khan, Swabi)

However, a rare exception came from one husband who stated that his wife could go alone, suggesting that some degree of flexibility exists within certain households, though this remains an outlier:

"Yes, she can go alone.", (Husband, Shewa, Razar)

While this viewpoint may reflect a degree of flexibility within some households, it remains clear that the prevailing cultural and familial context discourages or explicitly forbids PPPAGs from independently accessing ANC/PNC services.

Observational Evidence of Accompaniment Patterns

ANC session observations further supported the limited agency and decision-making ability of PPPAGs in care-seeking. In 18 observed ANC sessions, 13 PAGs were accompanied (eight out of 10 facility-based ANC sessions and five out of eight community-based sessions were accompanied), while five girls attended the visit alone. The PAGs were accompanied most by their MIL. In 30% of the accompanied sessions, the accompanying family member, typically the MIL, spoke more than the adolescent, often taking the lead in communication with HCPs.

FIGURE 3: Accompaniment during antenatal care contacts by setting

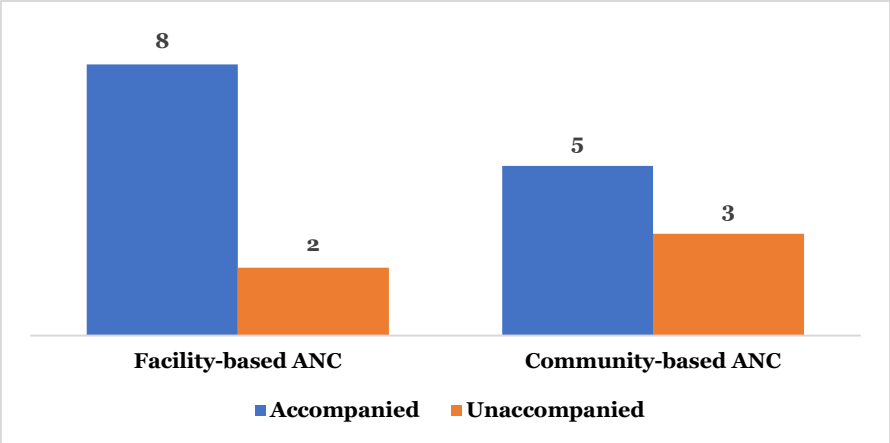
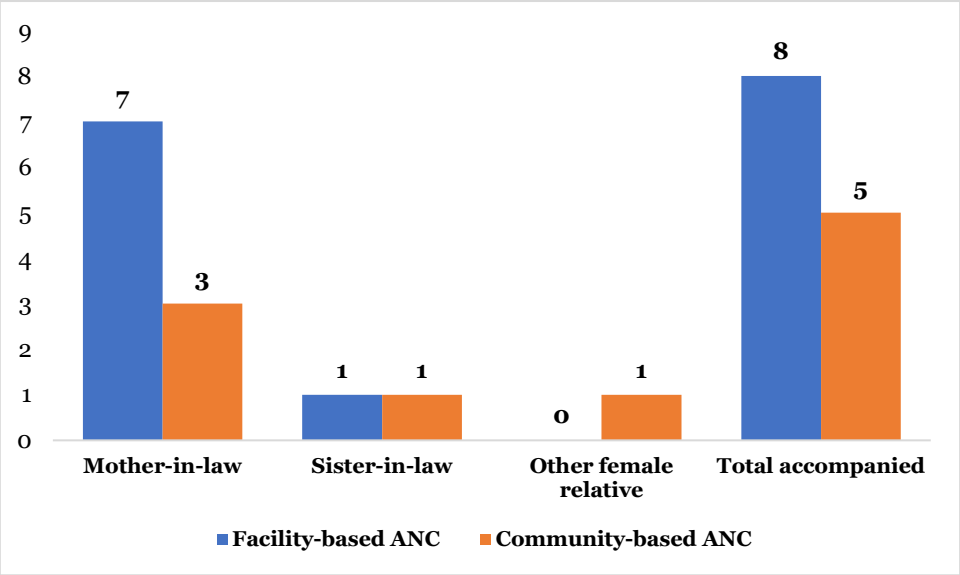
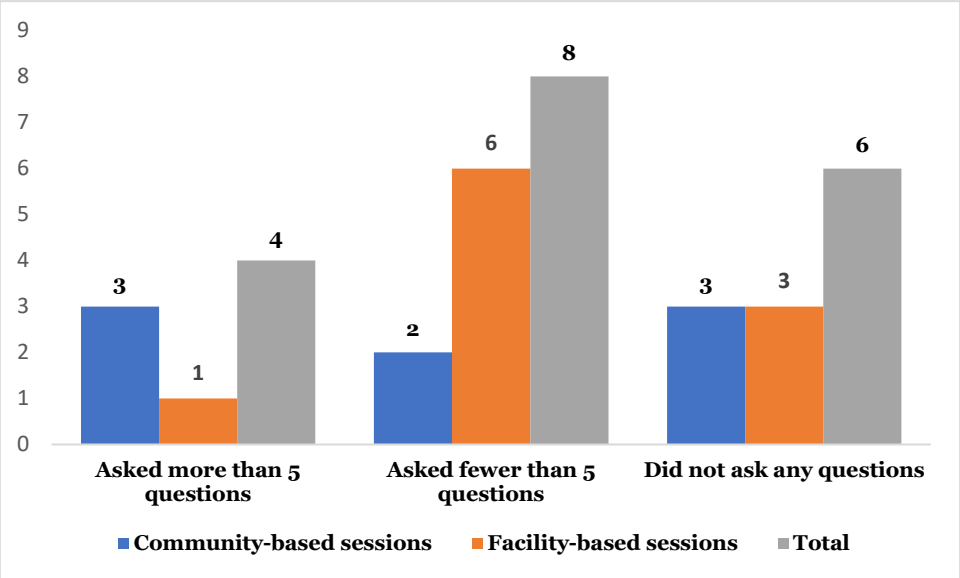


FIGURE 4: Type of companions by antenatal care contact setting



Observations from community-based ANC visits indicated a slightly more participatory pattern compared to facility-based visits. Across 18 observed ANC sessions in both community and facility settings, PAGs asked more than five questions in four sessions, fewer than five in eight sessions, and none in the remaining six.

FIGURE 5: Indication of pregnant adolescent girls' engagement during antenatal care contacts



In this context, accompaniment can be both protective and limiting. While it may ensure physical access to services, it can also curtail PPPAGs' autonomy, privacy, and confidence in interacting with HCPs and accessing timely preventative care.

While this viewpoint may reflect a degree of flexibility within some households, it remains clear that the prevailing cultural and familial context discourages or explicitly forbids PPPAGs from independently accessing ANC/PNC services.

3.2.2. AGENCY, AUTONOMY, AND DECISION-MAKING DYNAMICS

Family Member Perspectives

Decision-making regarding ANC/PNC access and uptake of recommendations for PPPAGs is primarily led by elder family members, particularly MILs and husbands. Among the 15 responses from family members (including mothers of PPPAGs, MILs, and husbands) across various urban and rural UCs, 11 clearly indicated that PPPAGs had no role in making their own healthcare decisions. While acknowledging the small sample size, exploratory analysis showed that this lack of decision-making power remained consistent across PPPAGs, with no variation by parity, age, or location.

As one MIL expressed:

"Due to the daughter-in-law's young age, her mother-in-law and husband make the [health care] *decisions because she is inexperienced.",* (MIL, Kalu Khan, Razar)

In rural areas, eight of 11 responses followed a similar pattern:

"No, all decisions are made by her mother-in-law and husband.", (Mother of PPPAG, Yar Hussain West, Razar)

Extended family members may also assume decision-making roles. For instance:

"In our culture, it is not considered appropriate for a girl's family to accompany her after marriage, so I did not go. Her elder brother-in-law's wife use to accompany her.", (Mother of PPPAG, Gabsani, Topi)

The authority of elder women within households was evident during interviews and FGDs:

"Discussions about ANC usually happen with the mother-in-law. If she agrees, then they take her.", (MIL, Saleem Khan, Swabi)

While two out of five husbands affirmed traditional authority, three out of five acknowledged their wife's autonomy or involvement in joint decision-making:

"No one else [but my wife] *can make decisions about ANC.",* (Husband, Saleem Khan, Swabi)

"She makes the decision about her checkups herself. No one else interferes.", (Husband, Sheewa, Razar)

"No, only my wife and I make the decisions, along with my mother.", (Husband, Yar Hussain West, Razar)

All three responses that indicated adolescent girls as primary decision-makers or joint decision-makers came from husbands.

These insights reinforce the finding that PPPAGs are often dependent on others, both financially and socially, to access essential health services.

Healthcare Provider Perspectives

HCPs consistently reported that PPPAGs often have limited or no autonomy in making decisions about their maternal healthcare. Out of 24 HCPs interviewed, 17 specifically addressed this issue, and among the 17, 16 HCPs emphasized that this lack of decision-making power is not just occasional but a deeply rooted structural or cultural norm that can affect women across age groups. In the context of PPPAGs, providers described how a combination of younger age, dependence, and household hierarchies may further constrain decision-making for PPPAGs, with strong family influence sometimes delaying or limiting access to timely care.

"The decision is taken by the husband and mother-in-law, so they hold the power of decision-making.", (WMO, Yar Hussain West, Razar)

"Husbands play the main role because they provide financial support. Women, especially housewives, generally cannot make decisions independently.", (WMO, Topi East, Topi)

"These girls cannot make their own decisions because they are not allowed to think for themselves… they just follow what the elders say.", (LHV, Saleem Khan, Swabi)

In emergencies, this lack of agency can have serious consequences. As one PPPAG shared:

"During my pregnancy, I had anaemia, and the doctor recommended getting a blood transfusion. My sister-in-law delayed the decision, but later she gave permission. If I disagree with her decision, then an argument usually starts.", (Pregnant adolescent, 18, Tarakai, Razar).

"Girls are not allowed to go alone. Even if referred, they can't go unless someone from the family agrees.", (LHW FGD Participant, Jehangira, Lahor)

PPPAG Perspectives on Their Own Autonomy

Conversations with PPPAGs further confirmed that autonomy in accessing ANC/PNC services was generally low. PPPAGs indicated that most health-related decisions were made by male or elder female family members. Out of 18 responses, 16 identified a husband, father-in-law, brother-in-law, MIL, or sister-in-law as the primary decision-maker in their household.

"My husband makes all the decisions. If I need to go somewhere, I have to ask him.", (PPPAG FGD participant, 15-19, Yar Hussain West, Razar)

"My father-in-law takes all the decisions and we follow that." (Participant A); *"My brother-in-law is decision maker."* (Participant B); *"Whatever my mother-in-law says, we do that. I cannot ask to go to the doctor myself.",* (Participant C), (PPPAG FGD participants, 15-19, Tarakai, Razar)

Only two participants, both aged 18 (one pregnant adolescent from Kalu Khan and the other a postpartum adolescent from Tarakai), mentioned having some role or independence in decisions related to their health, diet, or daily responsibilities:

"The decision maker is my husband and every decision is made with my consent. Whatever he decides, its best for me. He takes good care of my diet and medication.", (Pregnant adolescent, 18, Kalu Khan, Razar)

While many girls viewed their lack of agency as a norm, this perception was explicitly expressed by seven out of 17 respondents, who framed male or elder family member control over decisions as justified, beneficial, or culturally appropriate:

"My husband makes all the decisions…he decides everything related to health, medicine, and food, and he takes very good care of me.", (Pregnant adolescent, 18, Jehangira, Lahor)

"My father-in-law makes all the decisions. If something is decided, everyone accepts it happily.", (Pregnant adolescent, 19, Kalu Khan, Razar)

In a few cases, financial hardship was cited as a greater barrier than decision-making constraints:

"Sometimes he doesn't have money, so I can't go for check-ups or buy fruits.", (Pregnant adolescent, 17, Saleem Khan, Swabi) … she continued by saying*: "However, he gives a lot of importance to MMS because he knows these are strength-giving tablets and they are free."*

"Due to financial problems, when I went to the doctor, I only got an ultrasound, and I stopped buying medicine because I couldn't afford it due to the household situation.", (Pregnant adolescent, 18, Tarakai, Razar)

3.2.3. ACCESS TO EDUCATION AND SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS (SRHR) INFORMATION

School teachers and administrators echoed similar concerns regarding the limited autonomy of married or PPPAGs, not only in health-related decision-making but also in continuing their education. IDIs revealed that social stigma and lack of institutional support frequently prevent married adolescent girls from returning to school, particularly during pregnancy.

Barriers to Educational Continuity

Teachers observed that even when girls express a desire to continue their education, family restrictions, or shame associated with appearing pregnant in public often result in early school dropout.

"Even if a girl wants to continue her education after marriage, she often cannot. She doesn't get permission, or she faces various problems. For example, poverty prevents her from studying further, or her in-laws do not allow her.", (Teacher, GGHSS, Jehangira, Lahor)

"No, they usually leave school because they are not permitted by their families or society to continue.", (Administrator, GGHSS, Jehangira, Lahor)

"We usually cannot help such students because by the time we find out, they are already married.", (Teacher, GGHSS, Jehangira, Lahor)

"Yes, I tell the parents that education is more important than early marriage. Early marriage can cause health issues and even death if the girl becomes pregnant.", (Teacher, GGHSS, Jehangira, Lahor)

"Married girls are ridiculed by others. It is considered shameful for a married girl to come to school. Even the in-laws don't support it.", (Administrator, private school, Kalu Khan, Razar)

And some expressed holding these beliefs themselves:

"In my opinion, she should stay at home. The baby's health and the mother's health are affected. Also, household responsibilities increase for the girl.", (Teacher, GGHSS, Kalu Khan, Razar)

One respondent described the perceived pressure to manage both educational and domestic responsibilities and the burden this creates for adolescent girls:

"Families expect the girls to excel both at home and at school, especially after marriage when they are still being allowed to study. Excelling in both areas is very difficult. Families find it hard to accept.", (Administrator, private school, Kalu Khan, Razar)

SRHR and Health Education in Schools

Schools played a minimal role in shaping adolescent girls' understanding of reproductive health, and maternal nutrition and health. School engagement on these topics remains limited and inconsistent, across both public and private institutions in both urban and rural areas. In summary, 14 out of 15 schoolteachers and administrators reported:

- Minimal collaboration with health bodies, except for occasional LHW visits focused on weekly IFA distribution.
- No structured programming or institutional partnerships related to adolescent pregnancy or maternal health.
- A rigid adherence to the existing science syllabus, which only addresses general nutrition, while SRHR and ANC-specific content remains unaddressed.[11]

Most schools restricted their instruction to the prescribed science curriculum, which touches only briefly on general nutrition and physical health. Reproductive health topics remained absent or were addressed only when specifically mentioned in the syllabus.

"No, no such education is provided. We only teach the subjects related to the curriculum.", (Teacher, GGHSS, Kalu Khan, Razar)

"Due to the community's influence, we can't directly talk to the girls about such sensitive topics.", (Teacher, GGHSS, Jehangira, Lahor)

"We do not hold dedicated sessions with students on reproductive health, but if there is a relevant topic in the curriculum, then we definitely provide education on it, including topics related to physical health.", (Teacher, GGHSS, Jehangira, Lahor)

"There is a chapter on nutrition that we teach. We also inform them about iron and the importance of avoiding deficiencies, but I can't elaborate much because I myself do not have detailed knowledge. That is the doctor's job.", (Teacher, Private School, Kalu Khan, Razar)

One HCP addressed the lack of SRHR in schools specifically:

"ANC-related information should be provided in schools. Teachers should be trained… they should teach young adolescent girls.", (WMO, Yar Hussain West, Razar)

Parental and Community Resistance

Furthermore, teachers cited social and parental resistance as one of the barriers to delivering health education. Educators expressed fear of backlash when discussing sensitive issues like menstruation, pregnancy, or early marriage:

"If ever we want to provide such information, we cannot do it freely because the parents are not very educated. If we talk about such topics with girls, parents sometimes react strongly and question what we are teaching their children.", (Teacher, GGHSS, Jehangira, Lahor)

"We don't directly talk to the girls because if parents find out, they think we are turning their daughter into a rebel. Instead, we talk to the parents about the harms of early marriage.", (Teacher, private school, Kalu Khan, Razar)

[11] It is worth noting that striking a balance between delivering necessary SRHR and maternal care and nutrition information to younger adolescents and protecting their reproductive rights requires careful consideration—particularly in cultural contexts where discussions around adolescent sexuality and pregnancy are often sensitive or stigmatized. The curriculum delivered in schools around SRHR and pregnancy care must therefore be both culturally sensitive and youth responsive.

Readiness for Change

Even when teachers were willing to share such information, structural limitations within schools persisted. Health-related discussions were generally confined to science teachers, with little room for cross-disciplinary engagement. Despite these noted barriers, teachers and administrators consistently demonstrated a readiness to support efforts to improve SRHR education delivered in schools if endorsed by government authorities and/or [unestablished] parent-teacher councils.

"In my opinion, there should be awareness in the community about adolescent pregnancies and ANC. Teachers have a role to play, but the main role is of the parents. If NGOs [non-governmental organisations] *can organize some sessions, especially through those community members who are respected or listened to by the people, then it would be more effective.",* (Administrator, GGHSS, Topi East, Topi)

"Schools should provide training and awareness so everyone knows the consequences of early marriage, and students should understand what becoming a mother a young age means and how to care for themselves.", (Teacher, GGHSS, Kalu Khan, Razar)

"There should be awareness sessions on these topics for young girls in schools. These sessions would be more beneficial if conducted by LHWs, doctors, or LHVs. At least once a month.", (Teacher, GGHSS, Jehangira, Lahor)

In summary, teachers and administrators in Swabi District expressed a spectrum of views. While many demonstrated willingness to support PPPAGs in continuing their education and providing SRHR information in schools, several also expressed concerns. These included fear of parental backlash, personal beliefs that married or pregnant girls should prioritise domestic responsibilities, limited knowledge of health topics beyond the curriculum, and institutional constraints such as the absence of Parent Teacher Association (PTAs) and lack of government endorsement for SRHR content. One respondent explicitly stated that pregnant girls should stay at home, suggesting that not all educators are equally supportive. These mixed perspectives underscore the need for institutional support, training, and clear policy guidance before the education sector can play a meaningful role in adolescent maternal health.

3.2.4. PERCEIVED BENEFITS OF ANTENATAL AND POSTNATAL CARE

This subsection brings together findings on how families, HCPs, and PPPAGs perceive the benefits of routine ANC/PNC, and examines postnatal care perceptions and practices—two closely related dimensions that together illuminate the demand-side dynamics shaping care-seeking behaviour for PPPAGs in Swabi District.

Perspectives of family members:

Family members across the study sites generally recognized the importance of routine and preventative ANC/PNC, especially in terms of early detection of complications, maintaining the health of both mother and baby, and ensuring the overall well-being of PPPAGs. Many parents of PPPAGs, MILs, and husbands explicitly mentioned that regular checkups are essential and that skipping them could lead to serious issues such as anaemia, miscarriage, or complications during childbirth. One mother of a PPPAG emphasized:

"Checkups should be done because she herself doesn't know. She might not realize that she is pregnant, what is happening, or what she should be doing.", (Mother of PPPAG, Gabsani, Topi)

"I told my daughter's mother-in-law to take her for check-ups every month if possible. There is a Lady Health Worker here who says that at least four check-ups should be done.", (Mother of PPPAG, Yar Hussain West, Razar)

While the overarching sentiment around the need for routine and preventative ANC/PNC was supportive, some variation was observed across study sites. For instance, respondents from urban UCs like Kalu Khan showed greater emphasis on routine ANC visits and facility-based care, with one family member stating:

"We often take our women to the hospital, either a private hospital or a government one, if we don't have enough money. This checkup helps determine the health of the baby and the mother's condition.", (Husband, Kalu Khan, Razar)

"Taking ANC is a good thing so that both the mother and baby's health remains good.", (Husband, Tarakai, Razar)

Similarly, another urban respondent from UC Kalu Khan highlighted the need for both nutrition and reduced stress for PPPAGs, potentially reflecting a more holistic understanding the importance of preventative care.

"I believe that during this time, special care should be taken of young pregnant girls' diet. In addition, mental peace is also necessary so that no harm comes to the baby during pregnancy.", (Mother of PPPAG, Kalu Khan, Razar)

However, the analysis also reveals inconsistencies in the understanding and practices of some family members about ANC/PNC. Three family members including a mother of a PPPAG, MIL, and a husband expressed the belief that ANC/PNC are only needed if visible health issues arise. For instance:

"No, it's not necessary… If any issues arise, then we go, but generally, we don't take her to the doctor.", (Husband, Kalu Khan, Razar)

"These visits don't always help. We don't take her for every visit because we don't feel the need.", (Husband, Shewa, Razar)

"We did not take her to the hospital; we ensured good food and proper nutrition at home. There was no reason to visit the hospital again.", (MIL, Kalu Khan, Razar)

"We didn't take my daughter because there was no need. Everything was normal. People usually take women only when the mother or the baby faces some issue or difficulty.", (Mother of PPPAG, Gabsani, Topi)

Such views reflect a reactive approach rather than a preventive one and indicate a gap in general understanding the importance of routine checkups, even in the absence of symptoms.

Perspectives of healthcare providers:

IDIs with HCPs highlighted their perceptions of how families understand the need for preventative maternal health and nutrition care for PPPAGs. According to these HCPs, while some families are gradually becoming more open to medical advice, others still adhere to traditional beliefs, misinformation, or face financial constraints that hinder their ability to access regular, preventative care. Seven out of 15 responses from HCPs indicated discouraging experiences, where families either lacked awareness or were resistant to learning:

"No, they [families of PPPAGs] *don't understand. They don't even want to understand. The social pressure and the fact that their own children were born without any special care lead them to believe the younger generation should be just like that.",* (CMW, Gabsani, Topi)

"Many families don't give importance to proper medical care. They believe there is no need to visit a doctor, preferring herbal remedies instead. They say, 'Our children were born at home, so why go to the doctor?'.", (LHS, Gabsani, Topi)

Misconceptions also extended to dietary needs. HCPs noted that many families do not understand the importance of good nutrition or hygiene for PPPAGs:

"Whatever food is available at home, that's what the pregnant girl has to eat. No special food is given beyond that." She continued by saying*: "No one understands these needs. Older women in the*

house give homemade remedies like 'if you take this, the baby will be healthy or beautiful,' or 'if you're in pain, use this remedy; no need to take medicine or see a doctor'.", (CMW, Kalu Khan, Razar)

Several HCPs highlighted that PPPAGs are often unable to make decisions independently, with elders, particularly MILs or husbands, acting as gatekeepers.

"These girls cannot make their own decisions because they are not allowed to think for themselves… They just follow what the elders say.", (LHV, Saleem Khan, Swabi).

Another provider added, *"Yes, it affects their decisions… The head of the household and other elder members discuss it among themselves… Then, the adolescent girl comes to us.",* (CMW, Jehangira, Lahor).

In cases where cultural or religious beliefs conflicted with medical advice, providers reported facing resistance or disengagement from families. One WMO shared:

"Yes, we often meet people who use religion or culture as reasons to resist our advice. It becomes very difficult to convince them.", (WMO, Topi East, Topi).

She described further: *"Factors like religious issues, strict household environments, and restrictions on women going out or getting ultrasounds done affect their ANC decisions."*

A CMW from Jalbai (Lahor) added: *"Yes, many people do not seek care during the first trimester. They believe that ultrasounds are not good for them, so they usually wait until five to six months before seeking care."*

Perspectives of pregnant and postpartum adolescent girls:

Findings from IDIs with PPPAGs revealed that awareness and appreciation of ANC/PNC often emerged only after pregnancy confirmation. Among the eight interviewed girls, two among the 3 multiparous had any prior knowledge of ANC, both aged 15–19 and from rural areas. The remaining six, particularly those aged 10–14, had never heard of ANC before becoming pregnant, highlighting a significant gap in pre-pregnancy health education for younger adolescents.

"No, I wasn't aware. However, from the beginning of the pregnancy, my family would talk about it and guide me. My family is supportive.", (Pregnant adolescent, 19 years, Kalu Khan, Razar)

"I didn't know about ANC.", (Pregnant adolescent, 13 years, Saleem Khan, Swabi)

For many girls, awareness of ANC emerged mid-pregnancy, typically through the intervention of family members, especially mothers of PPPAGs, MILs, and aunts, or HCPs. Family involvement was often more influential than contact with HCPs, indicating that trusted female relatives play a pivotal role in shaping PPPAGs' understanding and acceptance of the importance of ANC/PNC and highlighting the importance of engaging them in any community outreach.

"No, I got to know about it later when the doctor and family members - MIL and paternal aunt, who is my sister-in-law as well - told me.", (Pregnant adolescent, 18 years, Jehangira, Lahor)

In addition to general recognition of ANC/PNC benefits, the data reveal mixed awareness regarding the importance of early ANC (within the first trimester) and routine visits throughout pregnancy and postpartum. Some respondents demonstrated a strong understanding of preventive care, including the need for regular checkups even when no health concerns are present.

"Every month according to the doctor's advice.", (MIL, Kalu Khan, Razar)

"She has completed five months of pregnancy, and I went with her 3 times.", (Husband, Shewa, Razar)

"I'm currently in my fourth month, and so far, I've gone for check-ups twice; once to a health center and once to a private clinic.", (Pregnant adolescent, 17, Topi East, Topi)

"Four to five visits with a doctor and three visits with a health worker. Every visit had a good positive impact.", (Pregnant adolescent, 18, Kalu Khan, Razar)

These examples reflect a more proactive care-seeking behaviour. The emphasis on monthly checkups and the reported positive impact of repeated visits suggests some PPPAGs and their family members do value ANC beyond immediate medical needs and understand its broader role in monitoring health and preventing complications. However, some PPPAGs also described either delayed initiation of care or limited follow-up visits, typically driven by prior pregnancy experiences or a perception that ANC is only necessary when visible complications arise.

"I went for check-ups three times during the whole process: in the fourth month, the seventh month, and the eighth month.", (Postpartum adolescent, 18, Tarakai, Razar)

"I only went once when I got the test done for the first time, at that time I was in the second month of pregnancy. Now, I am in the eighth month. I knew that my first delivery was in the tenth month and there was no issue, so I didn't go to the hospital.", (Postpartum adolescent, 18, Gabsani, Topi)

"I visited twice because of some difficulties at home [financial issues]*.",* (PPPAG FGD Participant, 15-19, Yar Hussain West, Razar)

These narratives suggest that a reactive approach to care-seeking remains common, especially when there are no apparent health concerns. This suggests a gap in awareness about the importance of early and regular ANC/PNC.

Postnatal Care: Perceptions and Practices Among Families of PPPAGs

The patterns of reactive care-seeking documented above for ANC extend into the postnatal period.

Family understanding of PNC was largely centred on physical recovery, nutrition, and rest rather than on engagement with the health system. Several respondents framed PNC in terms of the traditional 40-day postpartum period, emphasising home-based care, dietary support, and protection from physical strain. Medical PNC contacts were generally viewed as necessary only when complications arose, rather than as a routine component of the continuum of maternal care:

> *"After the baby is born, the mother needs good nutrition and rest — this way, neither the mother nor the baby will face any problems later."* (Mother of PPPAG, Yar Hussain, Swabi)

> *"It is very important — those 40 days are considered very special, especially during the winter season because our area is much colder compared to others. That's why, during winter, the girl doesn't leave the room for 40 days to avoid the risk of paralysis, fear, or catching any other illness."* (Mother of PPPAG, Gabsani, Topi)

> Most families adopted a reactive rather than preventative approach to postnatal health contacts. Several respondents explicitly stated that they did not seek PNC because no visible problems had arisen. Out of 12 family member respondents who addressed PNC, at least five reported that no postnatal visits were made. Even among those who acknowledged the importance of PNC, uptake was conditional on the presence of symptoms:

> *"There's no need for check-ups after the baby is born. Once the child is delivered and if there are no problems, then there's no need for monthly check-ups either."* (Husband, Kalu Khan, Razar)

> *"We did not take her for PNC — only once we took her because of fever. The girl had no discomfort; if she experiences any discomfort, then we take her to the hospital."* (MIL, Saleem Khan, Swabi)

> *"They didn't take my daughter because there was no need — everything was normal. But people usually go in such situations when either the mother or the baby has some problem or is in pain."* (Mother of PPPAG, Gabsani, Topi)

> *"We did not take her because I made sure she had proper nutrition and good food."* (MIL, Kalu Khan, Razar)

This pattern suggests that many families equate home-based nutritional support with adequate postnatal care, and do not perceive routine medical PNC contacts as necessary when the mother and baby appear healthy. This gap in understanding the preventative value of PNC is consistent with broader patterns documented in Swabi District and is not unique to PPPAGs, though it may be compounded by the limited agency and health literacy of adolescent mothers.

Those who did attend PNC contacts described positive experiences, with HCPs providing guidance on wound care, breastfeeding, nutrition, and recovery. One MIL described a structured postnatal experience:

> *"The baby was born, and ten days later we went to the doctor. The doctor advised her about the stitches — that they should be kept clean, she shouldn't sit for long periods, should walk around a bit, and also lie down and rest. She also emphasised the importance of eating nutritious food so that both the mother and the baby stay healthy."* (MIL, Jehangira, Lahor)

One husband articulated a more preventative understanding and recommended at least two postnatal contacts:

> *"Yes, I think should go at least twice because if there is a problem with the child, such as weakness or anaemia or any other germs, then it will be known. Similarly, the mother is also properly examined so that if she has any problems, she too can be diagnosed."* (Husband, Yar Hussain, Razar)

However, this view was not widely shared. When asked how many postnatal contacts should be received, responses ranged from none to three, with no respondent mentioning the WHO recommendation of at least four postnatal contacts within the first six weeks.

No respondent indicated that a PPPAG could attend PNC alone. The requirement for family accompaniment was framed in terms of both physical vulnerability and cultural expectation:

> *"No, they are not allowed to go alone because she has a child and feels weak due to the birth, so they are not allowed to leave the house alone."* (MIL, Yar Hussain, Razar)

> *"Permission is granted, but not alone."* (Mother of PPPAG, Shewa, Razar)

One respondent described the social judgement that could follow if a postpartum girl attended a health visit unaccompanied:

> *"In our society, people talk. They say things like, 'She was just a girl and went alone — someone should have been with her. She took such a big step on her own.'"* (MIL, Jehangira, Lahor)

In summary, family perspectives on PNC for PPPAGs in Swabi District reveal a pattern of home-based, nutrition-focused PNC that largely substitutes for engagement with the formal health system. Medical PNC contacts are sought reactively rather than routinely, and the preventative value of postnatal visits is poorly understood. Where PNC was accessed, families reported satisfaction, suggesting that the barrier lies more in demand and awareness than in service quality. The strict accompaniment norms that shape ANC access apply equally to PNC, further constraining PPPAGs' independent access to postnatal services. These findings, while limited to family perspectives and not validated through observation, point to an urgent need for Behaviour Change Communication (BCC) efforts targeting families on the importance of routine PNC, as well as for strengthening postnatal outreach through trusted community-based platforms such as LHWs.

The table below summarizes key myths and perceptions related to ANC/PNC as reported by PPPAGs, family members, and healthcare providers. It highlights both common patterns and differences across respondent groups that shape influence are-seeking behaviours and helps identify priority areas for targeted communication and program interventions.

TABLE 7: Summary of myths and perceptions shared by different groups of respondents

	Myth and/or Perception	Illustrative Quote(s)
Dietary and health beliefs among families of PPPAGs		
1	"Hot effect" foods (e.g., red meat, eggs, mangoes)/ spicy foods "over-heat" the baby and should be avoided.	"*My MIL advised me to avoid foods with hot effects.*" (PAG, 17 years) "*My MIL has advised me not to eat spicy foods. She tells me that this is harmful for the child.*" (PAG, 18 years) "*Yes, my MIL has advised me to stay away from spicy* [foods] *.... She believes that consuming spicy food can cause the baby to feel overheated.*" (PAG, 17 years)
2	Street foods (e.g., chats, pakoras, samosas, gol gappay, fries, burgers, etc.) are not healthy in pregnancy.	*"… sometimes my mother-in-law would say that this (street food) food is not good for you, and that the food cooked at home is good for you."* (19-year pregnant girl,)
3	Emphasis on "special" foods as pregnancy nutrition	"*My husband's grandmother has advised me to include desi ghee in my diet, as she believes it is beneficial for both my health and the baby's well-being.*" (PAG, 15-19 years) "*She* [MIL] *also suggests that eating beetroot increases blood.*" (PAG, 18 years)
4	Chicken and fish are seen as harmful for mother and baby. Misconception around the meaning of "energy rich".	*"My MIL has advised me not to eat chicken or fish because it could harm both me and the baby. Instead, she recommends consuming energy-rich foods."* (PAG, 18 years)
Maternal micronutrient supplements		
5	Consumption of MMS will make the baby "too large".	*"Some guardians support good nutrition, such as taking iron supplements, but others discourage* [IFA/MMS], *saying it may make the baby too large or cause complications..."* (CMW)
6	Distrust of supplements (MMS) as foreign medicine; contain unknown ingredients.	*"... Others are suspicious, saying these might be international medicines* [MMS] *with unknown ingredients."* (WMO)
7	Supplements may cause miscarriage or stomach problems.	*"Some patients have stomach problems and can't tolerate the supplements..."* (WMO) *"Some girls worry that these supplements may cause miscarriage or stomach issues."* (CMW)
8	Incorrect information about the composition and/or role of MMS.	*"Yes, we prescribe them* [MMS] *to ensure that the mother does not suffer from deficiencies in iron, folic acid, or calcium."*[12] (CMW) *"She gains strength from 15 types of nutrients, and it* [MMS] *also makes childbirth easier."* (CMW)

[12] The United Nations International Multiple Micronutrient Antenatal Preparation (UNIMMAP) does not include calcium. The MMS distributed in Swabi District through the AMMI Project is of the UNIMMAP formulation.

Community attitudes around PPPAGs' health and care		
9	Giving birth at home is seen as normal/preferred because it was done in the past.	*"Yes, many people say that in the old days, babies were born at home, and going to the hospital wasn't necessary."* (MIL) *"Mothers-in-law often say there's no need for family planning, claiming, 'We also delivered children without any issue'.",* (CMW) *"We ourselves never needed to go to a doctor during pregnancy or for childbirth.",* (MIL) *"No, they [families of PPPAGs] don't understand. They don't even want to understand. The social pressure and the fact that their own children were born without any special care lead them to believe the younger generation should be just like that.",* (CMW)
10	Perceived low need for preventive care and nutrition.	*"Some MILs believe that the girls are young, healthy, and perfectly fine, so they don't need to pay much attention to what they eat."* (CMW) *"Yes, sometimes the MIL say that she is young and do not need such special food."* (CMW) *"No, it's not necessary… If any issues arise, then we go, but generally, we don't take her to the doctor because her health seems fine."* (Husband)
11	Some families don't support girls following maternal nutrition advice.	*"… many families … thinking that pregnancy is a common thing and there's no need to make special dietary changes. Some girls tell us that their families do not approve of them following proper dietary recommendations."* (CMW)
12	Home remedies are preferred over medical care.	*"No one understands these needs. Older women in the house give homemade remedies like 'if you take this, the baby will be healthy or beautiful,' or 'if you're in pain, use this remedy; no need to take medicine or see a doctor'."* (CMW)
13	Early ultrasounds are harmful (radiation may cause miscarriage), so families delay ANC until mid-pregnancy.	*"Yes, many people do not seek care during the first trimester. They believe that ultrasounds are not good for them, so they usually wait until 5 to 6 months before seeking care."* (CMW)
14	Young adolescent girls are weak, "lack blood", "blackout easily", and face difficult deliveries.	*"Young adolescent girls do not have knowledge about their health. They have lack of blood and experience blackouts. At this young age during the delivery, they go through a lot of discomfort."* (LHV)
Social norms limiting PPPAGs' mobility and autonomy		
15	PAGs shouldn't go to checkups alone because they are weak and might face problems on the way.	*"No, absolutely not. Because they are sick and problems may arise on the way.",* (Husband) "*Yes, my MIL advises that I shouldn't go out too much, especially in my condition.*" (PAG, 18 years)
16	Post-pregnancy mobility restricted.	*"In a community, everyone knows that this girl is married, and after pregnancy, it is not considered good for her to go out."* (Teacher)
17	Gender norms such as shame and modesty limit girls' movement.	*"… people don't like their daughters going out in such a condition due to modesty/shame because there are male employees in school as well."* (School administrator)

3.3. Health Services for Pregnant and Postpartum Adolescent Girls

This section explores findings related to the delivery of antenatal and postnatal care (ANC/PNC) to PPPAGs in Swabi District, Khyber Pakhtunkhwa. Drawing on interviews with healthcare providers (HCPs) across public health sector facilities and community-based platforms, family members of PPPAGs, PPPAGs themselves, and observational data from ANC sessions, the analysis is organized around four interconnected pillars from the framework (Please see Figure 1): Health Workforce, Quality of Care, Platforms, and Tools.

3.3.1. HEALTH WORKFORCE

This subsection examines the KAP of HCPs delivering ANC/PNC to PPPAGs across facility-based (WMOs, LHVs) and community-based (CMWs and LHWs) platforms. It covers provider attitudes and empathy, communication adaptations, training gaps, knowledge limitations, and the role and coverage of LHWs.

Attitudes and Empathy Toward PPPAGs

HCPs across Swabi District demonstrated generally empathetic, respectful, and protective attitudes towards PPPAGs. None expressed stigma or moral judgment regarding adolescent pregnancies. Instead, their concerns were rooted in adolescents' medical and emotional vulnerability, often tied to their physical immaturity, lack of awareness, and dependence on family decision-makers:

"Young adolescent girls do not have knowledge about their health. They have lack of blood and experience blackouts. At this young age during the delivery, they go through a lot of discomfort.", (LHV, Jehangira, Lahor)

"Their growth and development are still in progress... such girls often appear much older than their actual age in a short period due to the physical strain and lack of adequate nutrition.", (LHV, Shewa, Razar)

"Pregnant girls aged 10 to 19 are very young, so they have little awareness about ANC. Secondly, they cannot make decisions about their health and nutrition independently. Due to fear of their husbands and mothers-in-law, they do not seek ANC services.", (LHW FGD Participant, Jehangira, Lahor)

Overall, 11 out of 13 clinical care providers—across both facility-based (WMOs and LHVs) and community-based (CMWs) platforms—demonstrated empathy and understanding from a clinical perspective toward adolescent pregnancy, acknowledging the distinct needs, high risks, and vulnerabilities of PPPAGs. Importantly, no provider described adolescent pregnancy in terms of shame, dishonor, or moral judgment; however, perceptions about PPPAGs' limited health knowledge and maturity were noted:

"A young girl who gets pregnant at an early age lack understanding. She does not take care of herself and doesn't follow the necessary precautions.", (CMW, Jalbai, Lahor)

HCPs consistently acknowledged the high medical and nutritional risks associated with adolescent pregnancy, including risk of physical underdevelopment, anaemia, miscarriage, and mental distress.

"Getting pregnant at a young age poses risks for girls. There is a higher risk of miscarriage among younger girls. They also suffer from anaemia. They tend to have fear and anxiety, and this also affects the growth of the baby.", (CMW, Jalbai, Lahor)

"Their mental health is affected, physical health deteriorates, they stay sick continuously ... These girls are very young, so the burden of childbirth takes a toll on them. There's also a higher risk of abortion for them.", (LHV, Shewa, Razar)

"Young girls face risks such as PPH [postpartum hemorrhage], *rupture, abortion, and vaginal infections. There is also a higher chance of complications and miscarriage. They require more emotional stability and support.",* (CMW, Tarakai, Razar)

In addition to the emotional and physical vulnerabilities of PPPAGs, HCPs emphasized the nutritional risks associated with adolescent pregnancy. They noted that PPPAGs often lack awareness of their dietary needs, experience anaemia, and are not adequately nourished for pregnancy and childbirth.

"They often face complications during delivery. They lack understanding of their health needs, especially nutrition, and have low hemoglobin levels.", (LHV, Kalu Khan, Razar)

"Due to lack of education and awareness in the community, most complications are nutritional, which often leads to anaemia.", (WMO, Gabsani, Topi)

"We advise them about their diet. We tell them that since they are young, the better they eat, the healthier their baby will be.", (LHW FGD Participant, Jehangira, Lahor)

HCPs linked these issues to both the biological immaturity of adolescent girls and the sociocultural norms that affect their health behaviors.

"Yes, nutritional deficiencies can occur as young girls are still in the process of physical development.", (CMW, Gabsani, Topi)

"Some guardians support good nutrition, such as taking iron supplements, but others discourage it, saying it may make the baby too large or cause complications. Many families do not support the girl's health or dietary choices.", (CMW, Topi East, Topi)

SRHR Counselling

All WMOs, LHVs, and CMWs reported that they do provide SRHR counselling to PPPAGs and often extend this engagement to family members such as husbands, mothers of PPPAGs, and MILs. Counselling is not limited to clinical information but often includes moral guidance against early marriage and the broader reproductive health needs of adolescents.

"Yes, we do counsel them. We also talk to parents and tell them that such young girls should not be married.", (LHV, Shewa, Razar)

"I advise her to maintain cleanliness and practice family planning to ensure a two-year gap between pregnancies.", (CMW, Jehangira, Lahor)

"We talk to their guardians, especially the mother-in-law, about reproductive health. We also … advise the mother-in-law to explain to the husband the importance of birth spacing.", (LHV, Jehangira, Lahor)

However, engagement with family members regarding SRHR is not always feasible. While HCPs generally reported that they deliver SRHR counselling, their ability to do so effectively is often constrained by familial resistance rooted in cultural norms.

"We sometimes talk to the girl about family planning, but it is not possible to discuss these topics with her mother, mother-in-law, or husband. There are strong taboos in the community, and people take offence at such discussions.", (WMO, Gabsani, Topi)

"Mothers-in-law often say there's no need for family planning, claiming, 'We also delivered children without any issue'.", (CMW, Jehangira, Lahor)

Notably, HCP engagement with husbands was most commonly reported in the context of SRHR and birth spacing counselling rather than routine ANC consultations. LHVs and CMWs described involving husbands primarily to communicate messages about family planning and the importance of spacing pregnancies—topics where male decision-making authority within households was recognized as a key determinant of uptake.

Family Engagement in Antenatal and Postnatal Care

HCPs commonly extended ANC-related counselling to family members, including husbands, mothers of PPPAGs, and MILs, recognizing that family dynamics are a key determinant of adolescent girls' ANC uptake and adherence.

"We talk to their guardians, especially the mother-in-law, …. We also consult them regarding postnatal care ….", (LHV, Jehangira, Lahor)

Despite these challenges, HCPs noted that long-term relationship-building and involving family members thoughtfully, particularly when girls are hesitant to speak, can improve trust and acceptance of messages and care delivered. In settings where resistance is strong, LHSs—who supervise LHWs and conduct community outreach but do not deliver direct clinical ANC/PNC—shared strategies that have helped the LHWs improve acceptance and, consequently, their own comfort in delivering counselling to PPPAGs and their families. These include conducting inclusive counselling sessions with key family members, door-to-door visits and community engagement, and leveraging well established LHW teams to build household-level trust.

"LHWs and I already take their families into confidence, so they do not create any issues.", (LHS, Yar Hussain West, Razar)

"We create awareness by sitting with the community or going door-to-door, promoting vaccination, encouraging pregnancy check-ups, …, and persuading people in a friendly manner.", (LHS, Topi East, Topi)

"LHWs often have friendly relationships with the families, but they lack training and resources. They rely mostly on advice, but advice alone is not enough. Support is crucial.", (LHS, Kalu Khan, Razar)

Training Gaps

The perspectives of facility-based providers (WMOs and LHVs) and community-based providers (CMWs, LHWs, and LHSs) to better understand their capacity and enabling environment to provide quality care to PPPAGs through ANC/PNC. CMWs, LHWs, and LHSs reported diverse training experiences, but noted a clear gap in adolescent-specific content. While all LHVs/WMOs received general ANC/PNC training, none of them received training focused on adolescent-friendly ANC/PNC. Half of the CMWs interviewed (four out of eight) mentioned receiving training related to pregnancy and nutrition; however, none had received training explicitly addressing the maternal care and nutrition needs of PPPAGs. It should be noted that LHSs, as community-level supervisors of LHWs, do not deliver direct ANC/PNC clinical care. Their training needs relate to supervisory capacity, quality assurance, and the ability to support LHWs in delivering adolescent-responsive services, rather than clinical care delivery itself.

"I am trained, but there was no specific topic in that training focused on adolescent pregnant girls. We were only generally told that whoever accompanies the girl (e.g., the mother-in-law), she must take care of the girl in every aspect.", (CMW, Jalbai, Lahor)

"We haven't received formal training, but we are told to provide more guidance to younger girls compared to older women.", (CMW, Topi East, Topi)

"I've learned a lot through experience in the field, but I have not received any specific training focused on ANC and PNC for adolescent girls.", (LHV, Kalu Khan, Razar)

All these cadres emphasized the urgent need for comprehensive training, particularly on the emotional, nutritional, and medical aspects of adolescent pregnancy.

"Yes, training is essential. It should include information on the dietary needs of adolescent girls, how to care for them during pregnancy, potential complications, and the necessary health checks during pregnancy.", (LHS, Gabsani, Topi)

"Yes, we consider such training necessary. It should include all aspects regarding young girls and all the information about how to handle any issues that arise — where to refer them or how to deal with the situation ourselves.", (LHV, Saleem Khan, Swabi)

"We receive training on ANC and PNC every six months, but these trainings do not emphasize young adolescent girls specifically.", (WMO, Yar Hussain West, Razar)

All of the CMWs who responded expressed the need for adolescent-specific training, acknowledging they often feel challenged while guiding PPPAGs.

"Yes, this is very important. Because girls come to us and we ourselves don't have much information. If we had it, we could create something, something to explain what issues they could face, and how to care for their emotions.", (CMW, Kalu Khan, Razar)

"We need training on new technologies and advanced practices… especially on medicines for young pregnant girls.", (CMW, Shewa, Razar)

"Training on health awareness, hygiene, menstrual health management, and cultural sensitivity would be useful.", (LHV, Kalu Khan, Razar)

A strong demand for adolescent-specific training was expressed by 18 out of 21 HCPs. They highlighted the need for content covering adolescent nutrition, emotional well-being, counselling strategies, safe delivery practices, and family engagement to better support PPPAGs. They also highlighted gaps in capacity and guidance, particularly around SRHR, nutrition, mental health, and referral pathways. One WMO noted the need to integrate mental health support into routine antenatal and postnatal counselling, an often-overlooked component in current curricula:

"Yes, such training is necessary. It should include information on ANC like dietary advice, and PNC should cover mental health. Many young girls experience depression in this condition, so counselling methods should be part of the training.", (WMO, Gabsani, Topi)

"Additional counselling skills on the risks of early marriage and health issues related to early pregnancy would be helpful.", (CMW, Tarakai, Razar)

"I am trained, but there was no specific topic in that training focused on adolescent pregnancy. Training should include proper information about special nutrition and specific techniques relevant to adolescent care.", (CMW, Jalbai, Lahor)

Despite limited formal training, HCPs described a strong commitment to supporting PPPAGs through adaptive practices and self-acquired knowledge. Some HCPs outlined counselling PPPAGs on dietary habits, emotional well-being, and basic ANC procedures:

"Adolescent girls do not come for regular check-ups, but when they do come, I advise them about ultrasound scans, the use of iron and folic acid, and how to stay emotionally well and happy.", (CMW, Gabsani, Topi)

"If they can't afford meat or fish, we suggest seasonal fruits and vegetables that are cheaper.", (LHW FGD Participant, Kalu Khan, Razar)

LHW Role and Coverage

Several family members acknowledged the KAPs of community-based HCPs, particularly LHWs. These workers were seen as trusted sources of advice on antenatal nutrition, hygiene, and supplementation. Families noted that LHWs regularly visited households, provided reminders about monthly check-ups, and offered guidance on maintaining maternal health.

"Yes, the Lady Health Worker comes and provides advice.", (MIL, Kalu Khan, Razar)

"She used to ask the LHWs about cleanliness, food, and iron tablets.", (Husband, Saleem Khan, Swabi)

"There is a Lady Health Worker here who says that at least four check-ups should be done: one in the third month, one in the sixth month, one in the ninth month and then [another] *one in the ninth month. She also advised us to go to the hospital* [for delivery]*.",* (Mother of PPPAG, Yar Hussain West, Razar)

However, one respondent noted the absence of a LHW in her area, pointing to gaps in community-level service coverage, which affected access to timely guidance and supplementation.

"*There is no LHW in our area. She* [the daughter-in-law] *went herself and got vaccinated. No advice has been given about MMS.*", (MIL, Saleem Khan, Swabi)

These insights showcase that while families perceive LHWs to play a vital role in advising and supporting PPPAGs and generally trust this cadre, variability in their presence and coverage may remain a barrier to consistent community-level care in some areas. Further, some respondents noted gaps in public sector service quality, indicating a preference for private services when possible.

3.3.2. QUALITY OF CARE

This subsection examines the quality and consistency of ANC/PNC delivered to PPPAGs, drawing on both provider self-reports and observational data from ANC sessions. It covers counselling content and consistency, anaemia screening, micronutrient supplementation, side-effect guidance, referral pathways, and postnatal care practices.

Counselling Content and Consistency

During observations in publichealth facilities and CMWs, HCPs were not consistently observed using effective or age-appropriate counselling techniques. For example, in two out of 10 sessions, the HCP either did not explain procedures clearly or did so in a rushed or non-engaging manner. It is worth noting that variability in counselling quality was also observed in the AMMI Project across all pregnant women, suggesting this may reflect a broader systemic challenge rather than being unique to the care of adolescent girls. Nonetheless, observation data from both CMWs and facility-based providers also reflects variability in the quality and depth of counselling provided to adolescent girls during ANC visits.

Among WMO/LHV observations in facilities, eight out of 10 providers were observed to explain procedures and recommendations in clear language, demonstrating sensitivity to the girls' developmental stage. Similarly, while enumerators observed respectful communication from all eight CMWs (community-based), only four addressed the unique challenges faced by young mothers, indicating inconsistent attention to age-specific counselling needs.

However, two providers, one CMW and one WMO, mentioned challenges due to high patient loads and limited resources, which sometimes prevent them from providing the desired level of individualized care.

"I don't have any resources through which I can explain things properly; that's why people don't stay long.", (CMW, Kalu Khan, Razar)

"We conduct OPD [outpatient department] *and due to the high number of patients, we can't always give enough time. So, on community level, LHWs can spend more time with them and guide them more.",* (WMO Topi East, Topi)

Almost half of the HCPs reported ensuring to validate PPPAGs' feelings during ANC/PNC by acknowledging the changes they were going through and offering emotional support.

Perspectives of PPPAGs: PPPAGs consistently reported high satisfaction with the quality of care received from HCPs, particularly in terms of clarity, responsiveness, and the usefulness of health information provided during ANC/PNC visits. Most PPPAGs emphasized that they understood the advice given and were able to ask questions freely without feeling judged or confused. For many, the ability to communicate openly with HCPs contributed to a sense of trust and confidence:

"Yes, she [LHW] *explains everything very well, and I usually ask all my questions from her. She explains nicely and clearly. I'm satisfied with her behavior and guidance.",* (Pregnant adolescent, 18, Jehangira, Lahor)

"Yes, I understood. I was able to ask all my questions properly, and I never felt confused or uncertain.", (Pregnant adolescent, 19, Kalu Khan, Razar)

Others emphasized the ease of understanding the language used by HCPs, which helped in retaining and applying the information provided:

"Yes, because the advice was useful for my health and for the health of my unborn child, and it was given in simple language. No, I've never felt confused or afraid after any visit.", (Pregnant adolescent, 17, Topi East, Topi)

"I got answers to every question I asked. I used to ask questions about the things that I didn't know… She [HCP – cadre not specified] *told me about my diet,* [to] *eat vegetables, fruits and not to do any work.",* (Postpartum adolescent, 14, Shewa, Razar)

"She [WMO] *is very experienced, and I felt better after being treated by her.",* (Postpartum adolescent, 18, Gabsani, Topi)

The clarity of responses and supportive attitudes of the HCPs were also noted:

"Yes, I understood everything. I asked all the questions I wanted to, and I did not feel any confusion after the visit. When I told the doctor about my nausea and dizziness, she listened carefully, answered all my questions, and examined me.", (Pregnant adolescent, 17, Saleem Khan, Swabi)

In terms of specific content covered during counselling, girls reported receiving varying levels of information on key topics such as breastfeeding, facility-based delivery, regular check-ups and SRHR. Some PPPAGs reported receiving nutrition advice that, while well-intentioned, reflected gaps in evidence-based dietary counselling—focusing on specific foods rather than dietary diversity and balanced intake, and framing supplementation in non-clinical terms:

"Yes, during every check-up, the doctor spoke about nutrition because I had anaemia. She recommended drinking milk, eating pomegranate, apples, and other foods. She also gave me strength pills because of my anaemia.", (Pregnant adolescent, 18, Tarakai, Razar)

PPPAGs indicated that breastfeeding was commonly discussed during ANC/PNC contacts: girls recalled being advised to initiate breastfeeding immediately after birth, exclusively breastfeed for six months, and continue up to two years:

"Yes, the health worker said that the baby should be breastfed immediately after birth. I didn't face any difficulties breastfeeding, and I was advised to breastfeed exclusively and continue for up to 2 years.", (Postpartum adolescent, 19, Topi East, Topi)

"Yes, I am breastfeeding my baby and plan to continue breastfeeding. The health worker [LHW] *recommended breastfeeding immediately after birth and encouraged me to exclusively breastfeed for the first six months and then introduce soft foods.",* (Postpartum adolescent, 18, Shewa, Razar)

Information on nutrition was also shared, with some PPPAGs reporting advice on dietary intake such as consuming fruits and milk to support maternal health. One girl shared:

"Yes, the LHW mentioned that it's necessary to deliver at a health facility. The healthcare provider advised that I should eat nutritious foods like apples, and drinking milk is important.", (Pregnant adolescent, 13, Saleem Khan, Swabi)

In addition to practical information, emotional and psychological support from HCPs, as well as their demonstrated commitment to confidentiality, emerged as motivators for regular ANC attendance. Girls highlighted how consistent checkups positively affected their mental health and built trust in the HCP:

"Checkups have a good effect on my mental health. Everything I said was kept confidential.", (Pregnant adolescent, 18, Kalu Khan, Razar)

"I consider it positive because the things they tell me are important for my health. Yes, I trust the confidentiality of the healthcare provider.", (Postpartum adolescent, 19, Kalu Khan, Razar)

"I visited the doctor seven times for check-ups and had multiple visits for vaccinations.", (Postpartum adolescent, 18, Shewa, Razar)

While the accounts above reflect broadly positive experiences reported during IDIs, data from the JM exercise revealed notable gaps in counselling coverage. Out of eight girls, only half recalled receiving information on breastfeeding, three were counseled on facility-based delivery, and just two mentioned being advised on the need for regular antenatal check-ups. Notably, two girls said no information was provided on any of these topics, indicating missed opportunities for comprehensive counselling. Similarly, family planning counselling was inconsistently provided. Four PPPAGs reported receiving information about family planning methods, while five said they had not received any such information but expressed interest in learning more.

"Yes, the Lady Health Worker told me about the methods, and we followed those, which helped us maintain a three-year gap.", (Pregnant adolescent, 18, Jehangira, Lahor)

"No advice was given. No family planning products were provided either. Yes, I would like to receive this information.", (Pregnant adolescent, 18, Tarakai, Razar)

"No, I was not provided with any products. However, I would like to know what products are used for spacing births.", (Postpartum adolescent, 19, Topi East, Topi)

For some, the quality of interaction with HCPs, including their respectful attitude and the scope of information shared, such as on birth spacing, contributed to a sense of trust and perceived benefit of care:

"Yes, I would describe it as a positive experience based on my own experience. The information they provide is beneficial to me, and their attitude is also good. They even talked about birth spacing, which is in our best interest.", (Pregnant adolescent, 17, Saleem Khan, Swabi)

But this was not always the case:

"Doctors should treat young women who are pregnant or visiting for checkups with the same care and kindness they would show to their own daughters. They should not be intimidating.", (Postpartum adolescent, 19, Topi East, Topi)

"Yes, the lady health worker provided IFA/MMS supplements and discussed nutrition with me, advising me to eat vegetables and drink milk.", (Postpartum adolescent, 18, Shewa, Razar)

"Yes, the doctor said that if I take the strength pills, I would gain energy, and my anaemia would improve, and I wouldn't feel weak. These pills helped me recover from anaemia.", (Postpartum adolescent, Tarakai, Razar)

"They advised me to eat nutritious food during every visit. They did not provide MMS but gave other tablets to address anaemia.", (Pregnant adolescent, 17, Topi East, Topi)

"CMW's should have the facility of ultrasound. Her attitude is good, so if we can get these facilities over here it would be really beneficial for us. We wouldn't have the need to go anywhere else.", (Pregnant adolescent, 18, Topi East, Topi)

"I don't know much, but I think young girls or young mothers should be told about the kind of food they need after childbirth. That needs improvement.", (Pregnant adolescent, 17, Saleem Khan, Swabi)

Several girls described receiving nutritional counselling as a valued part of their ANC visits, with food-related advice enhancing their understanding of how to support their health during pregnancy:

"I liked the advice about nutrition, which the doctor provided. There wasn't anything I disliked, but I didn't know much about pregnancy care, and I appreciated the information about food from the doctor.", (Postpartum adolescent, 18, Tarakai, Razar)

While PPPAGs expressed satisfaction with the care received, their responses also revealed areas for improvement, including stronger community outreach, access to free medicines and tests, transport support in remote areas, and a perceived need for expanded information for other adolescents who may still lack awareness.

Communication Adaptations

HCPs reported spending extra time with adolescent girls to explain ANC concepts using verbal methods due to the lack of visual materials, both adolescent-specific and to support maternal health and nutrition counselling in general. Out of 16 clinical care providers—eight facility-based (WMOs and LHVs) and eight community-based (CMWs)—14 providers reported making deliberate efforts to spend more time with adolescent girls, ensuring they feel heard and respected during counselling sessions. When girls were too shy or distressed, providers involved family members—especially MILs—only after ensuring the girl felt comfortable. Extra time was noted in several interviews; however, this was not quantified.

HCPs also reported that they consciously adjust their tone, language, and approach when speaking with adolescent patients. To overcome comprehension barriers, some providers noted the use of repetition to ensure understanding. Seven out of eight LHVs/WMOs and all eight CMWs reported adapting their communication styles and time allocation to better support PPPAGs:

"We always speak respectfully and maintain confidentiality. We explain things to them properly and respectfully.", (CMW, Swabi Khas, Swabi)

"I give them more time, ensuring I respect their privacy and maintain confidentiality. I try to involve their families and make them aware of the situation. I approach them with care and respect, ensuring that any important messages are conveyed in a way they can understand.", (CMW, Gabsani, Topi)

"They have no idea how to manage pregnancy, or what checkups, tests, or diet they need. We have to spend a lot more time counselling them compared to older women.", (WMO, Topi East, Topi)

Out of the eight CMWs interviewed, five reported offering private, one-on-one counselling to PPPAGs to avoid embarrassment when family members are present. This suggests that some providers do

adjust their approach for younger clients, though this appeared to vary by individual provider rather than reflecting a standard practice.

"We talk with adolescent girls in a friendly way. Sometimes we separate them from the family member with whom they come and discuss their problems. We take care of their privacy.", (CMW, Jehangira, Lahor)

"We provide private counselling for young girls as they feel embarrassed discussing things openly in front of others.", (CMW, Topi East, Topi)

However, two out of 13 WMOs, LHVs, and CMWs respondents expressed a more standardized approach, applying the same care regardless of age. Interestingly, no provider clearly mentioned adapting the health and nutrition topics covered in their counselling for PPPAGs:

"We provide the same care to everyone, no matter the age. We provide MMS to pregnant women, offer counselling, and advise them on when to return for follow-up visits.", (WMO, Gabsani, Topi)

"No, I treat everyone the same way." (CMW, Kalu Khan, Razar)

Anaemia Screening and Micronutrient Supplementation

Observations from 10 ANC sessions in public health facilities provided insights into the delivery of core clinical services to PAGs. Only two out of 10 girls were screened for anaemia, while eight out of 10 girls were provided IFA or MMS supplements during the consultation.

ANC service delivery was observed across eight sessions conducted by CMWs. Provision of supplements was documented in five out of the eight sessions. It should be noted that CMWs are not part of the government formal structure hence they did not have MMS supplies at the time of data collection.

Detailed guidance such as diet diversity and on managing potential side effects from supplementation was limited across both settings.

"We provide the same care to everyone, no matter the age. We provide MMS (Micronutrient Supplementation) to pregnant women, offer counseling, and advise them on when to return for follow-up visits." (WMO, Ghabasni, Topi)

All HCPs across cadres interviewed confirmed that they recommend IFA or MMS to PAGs during ANC:

"Yes, I recommend MMS at every visit, because during pregnancy, young girls are weak and often suffer from anemia, so I advise them to take MMS or IFA.", (LHV, Jehangira, Lahor)

"Yes, I recommend IFA and MMS to pregnant girls of all ages. I explain the benefits of MMS and advise them to take one tablet daily between meals.", (CMW, Jalbai, Lahor)

"Yes, absolutely. We prescribe MMS supplements, they are like a backbone nowadays. They have very good effects on the health of the mother and baby.", (WMO, Topi East, Topi)

"Yes, I tell them MMS have 15 micronutrients, including vitamins which are mandatory for good health." (CMW, Shewa, Razar)

Even in cases where girls were unable to follow through on all recommendations due to affordability constraints (e.g., purchasing recommended foods such as milk, or supplements accessed outside the public system), they still expressed understanding of the advice:

"Yes, I understood. The doctor told me to drink milk and take strength pills but I didn't always buy them. I was never confused or uncertain after any visit.", (Pregnant adolescent, 18, Tarakai, Razar)

These inconsistencies in service delivery—including low rates of anaemia screening and inconsistent dietary advice—are consistent with known systemic challenges in ANC delivery across Swabi District and are not necessarily unique to the care of PPPAGs. However, given PPPAGs' heightened vulnerability and reliance on provider guidance, strengthening adherence to ANC/PNC protocols and counselling quality remains important to ensure that they receive the recommended package of interventions, regardless of provider or setting.

Referral Pathways and Continuity of Care

The current referral system across public health sector in Swabi District lacks standardization and consistency—a well-documented challenge that affects all pregnant women, not only PPPAGs. The common practice of accessing care from multiple providers in public and private settings across the course of one pregnancy also adds to this complexity. Community-based providers (CMWs and LHWs) and facility-based providers (WMOs, LHVs) reported relying on informal referral channels, such as verbal suggestions and personal phone calls, which often go undocumented and untracked. Furthermore, coordination challenges exist between community- and facility-based HCPs, sometimes leading to delays in maternal micronutrient supplementation initiation. While these gaps affect all pregnant women, they may be particularly consequential for PPPAGs, who face additional barriers to navigating the health system independently and are inherently high-risk.

"There is no formal slip for referral, we mostly just tell them to go to the THQ [Tehsil Quarter Hospital] *if we feel it's serious.",* (WMO, Yar Hussain West, Razar)

"When a case is beyond my capacity, I inform the family, but whether they actually go to the hospital or not, I don't always know.", (LHV, Kalu Khan, Razar)

"Sometimes we send a girl to the RHC, but then we don't hear back. We don't know if she go the service.", (LHV, Shewa, Razar)

"We tell them to start taking our prescribed medicine [MMS/IFA] only after they have finished the medicine from the doctor.", (LHW FGD Participant, Jehangira, Lahor)

"If they have received medicine, we explain how to use it. After they finish that, we give them MMS tablets and guide them properly.", (LHW FGD Participant, Jehangira, Lahor)

Summary of Strategies cited by healthcare providers to adapt their interpersonal counselling for PPAGs

- **Allocate Extra Time (reported across cadres)**
  HCPs consistently reported spending additional time with PPPAGs to explain antenatal and postnatal concepts patiently, especially in the absence of adolescent-specific materials.
- **Engage Key Family Members (reported by CMWs, LHVs, and LHSs; husband engagement primarily in the context of SRHR and birth spacing counselling)**
  HCPs reported strategically involving MILs and husbands in counselling - only after ensuring the girls' comfort - to facilitate support and PPPAGs' decision-making within households.
- **Build Trust Through Community Relationships (primarily reported by LHWs and LHSs)**
  Trust was built through long-term relationships and household visits by LHWs and LHSs, who engaged with both PPPAGs and their families at the community level. This was validated by household-level respondents.
- **Prioritize Privacy and Confidentiality (primarily reported by CMWs: 5 out of 8)**
  CMWs cited commonly offering one-on-one counselling sessions to PPPAGs to avoid embarrassment and foster open communication, particularly when sensitive topics were discussed.

- **Demonstrate Empathy and Validate Feelings (reported across cadres)**
  HCPs reported to acknowledge PPPAGs' emotional needs, validate their feelings, and provide emotional reassurance to address distress, fear, and/or confusion during counselling.
- **Adjust Language and Tone (reported by LHVs/WMOs and CMWs)**
  HCPs cited using simple, respectful, and age-appropriate language, often repeating key information to ensure comprehension, particularly for shy or suspected low-literacy PPPAGs and their accompaniments.
- **Focus on Nutrition Counselling (observed across both facility and community sessions)**
  Nutrition was emphasized in nearly all sessions. Advice on iron, dietary diversity, and the importance of maternal micronutrient supplementation was shared, albeit with occasional knowledge gaps. HCPs consistently noted their understanding that adolescent pregnancies are inherently high risk.
- **Draw from Personal Experience in the Absence of Training (reported across cadres)**
  In the absence of formal adolescent-focused training, HCPs often relied on personal experience and informal practices to guide their counselling, offering a high level of empathy to counselling sessions.

3.3.3. PLATFORMS

This subsection examines the physical and organizational platforms through which ANC/PNC is delivered to PPPAGs, including facility infrastructure, privacy and adolescent-friendly spaces, community outreach modalities, and the feasibility and perceptions of group ANC/PNC models.

Facility Infrastructure, Privacy, and Adolescent-Friendly Spaces

Observations indicated that The audio-visual privacy was adequate at the facility level in eight of the 10 sessions observed. However, privacy was inadequate in three out of the eight sessions with CMWs, including shared spaces with family movement and one case where a MIL's presence may have limited adolescent participation. Two sessions (25%) were conducted in small or poorly equipped spaces, and three (37.5%) lacked clean or comfortable seating, including one on an unclean floor mat. These findings highlight significant privacy and infrastructure gaps, particularly in home-based settings. It is important to note these findings pertain to CMWs as observations were not completed with LHWs.

Respondents also made comparisons between public and private facilities, highlighting limited resources in public sector services, such as lack of testing, ultrasounds, and poor infrastructure, and indicated this as a key reason for preferring private care.

"ANC is understood well, but since government hospitals lack facilities, most people prefer to go to private hospitals.", (MIL, Saleem Khan, Swabi)

"Yes, of course, it was a private hospital, and all the facilities were there and they took very good care of us.", (MIL, Yar Hussain West, Razar)

"Yes, because it was a private hospital, so she received a lot of time and attention.", (MIL, Yar Hussain West, Razar)

Community Outreach

Trust was built through long-term relationships and household visits by LHWs and LHSs, who engaged with both PPPAGs and their families at the community level. This was validated by household-level respondents. LHWs regularly visited households, provided reminders about monthly check-ups, and offered guidance on maintaining maternal health.

PPPAGs also reflected on what could improve their experiences or support their needs more effectively. While some felt that the information provided during ANC was sufficient, others pointed out clear service gaps, particularly around access to supplies.

"…Many younger girls don't know much about pregnancy care. Younger girls often don't get the support they need. LHWs should provide timely care to younger pregnant girls and give them the necessary supplements because many girls are unaware and need help.", (PPPAG FGD participant, 15-19, Yar Hussain West, Razar)

PPPAGs expressed needs for stronger community outreach, access to free medicines and tests, transport support in remote areas, and expanded information for other adolescents who may still lack awareness.

Group ANC/PNC Feasibility and Perceptions

In light of emerging global evidence, respondents were introduced to the concept of adolescent-specific group ANC/PNC during the data collection activities and then asked to provide their perceptions around potential feasibility, benefits and drawbacks of group models. Group adolescent-specific ANC/PNC models are currently not being implemented in Swabi but emerged as a promising modality to better support effective care delivery for PPPAGs according to all respondent groups. While most respondents across groups saw potential benefits, notable reservations were expressed, particularly by some husbands and family members regarding permission, cultural acceptability, and practical feasibility.

Perspectives of family members: Family members generally viewed adolescent-specific group ANC/PNC models as a potential valuable platform for adolescent-friendly care. Out of 15 family members who were asked about group ANC/PNC, 13 explicitly supported the idea, citing benefits such as access to timely information, peer learning, emotional support, and greater comfort in discussing sensitive issues:

"They can unburden themselves emotionally, discuss their issues/problems freely, and feel more comfortable.", (MIL, Tarakai, Razar)

"Yes, [group models] *can be beneficial because all the participants are of the same age, they face similar issues, and when someone shares their concerns, the answers benefit everyone, so it proves helpful.",* (Husband, Shewa, Razar)

"Group ANC will be very beneficial. Being with girls of her own age will give her comfort, and she will get a chance to learn.", (Mother of PPPAG, Gabsani, Topi)

The perceived peer relatability and non-judgmental environment were seen as major enablers of open communication. However, two respondents expressed skepticism, with one husband stating:

"We don't know about other groups, but for our women, it's not necessary and not beneficial either.", (Husband, Kalu Khan, Razar)

Outliers point to the need for sensitization efforts to raise awareness of the potential benefits of structured, adolescent-friendly group ANC/PNC formats, should they be implemented in Swabi District in the future.

Perspectives of HCPs: IDIs with 15 HCPs (including CMWs, LHVs, and LHSs) revealed broad support for adolescent-specific group ANC/PNC models, with over two-thirds (11 out of 15) affirming their perceived benefits for PPPAGs. HCPs emphasized that such models would likely foster shared learning, peer comfort, and more open discussion on sensitive topics. As one CMW explained:

"They are same age group and understand each other well. They share almost same issues and can discuss these issues easily. This makes it possible to identify more issues through group discussions.", (CMW, Jehangira, Lahor)

"The benefit of group ANC is that they can easily understand each others' experiences and share knowledge.", (LHV, Jehangira, Lahor)

At the same time, a third of the providers (five out of 15) raised concerns around implementation. Key perceived challenges included difficulty coordinating group timings, obtaining family permissions, limited adolescent pregnancies per area, receiving the necessary support and training, and privacy concerns.

"The group ANC model is a good idea but has many challenges: It's difficult to bring pregnant girls together, managing time and creating a proper environment is tough. Religious and financial challenges also exist.", (WMO, Topi East, Topi)

"The challenges could be that some girls might not fully understand the information or may feel embarrassed to ask questions. They might prefer to speak to someone from their community instead of asking me directly.", (LHS, Gabsani, Topi)

"There should be specific training for group ANC: on how to talk to the girls. The communication should align with their culture so that they don't feel uncomfortable.", (LHV, Saleem Khan, Swabi)

"To manage group ANC properly, we would need some support. If we are providing group ANC, it is important to have the proper resources to manage it effectively and to ensure that the training is conducted in a way that benefits everyone.", (LHW FGD Participant, Jehangira, Lahor)

"Healthcare providers need training in running groups effectively. They should be knowledgeable about youth health, cultural sensitivity, and time management. Also, they need supportive supervision to make it work.", (CMW, Swabi Khas, Swabi)

Fifteen HCPs suggested that potential adolescent-specific group ANC/PNC models could be integrated effectively into community healthcare but emphasized the need for community sensitization and system-level support, including adolescent-friendly spaces. Only two out of 26 providers explicitly mentioned the financial constraints as a factor impacting group ANC/PNC and subsequently suggesting resource-based incentives to support group ANC/PNC. Other HCPs highlighted the need for family permission as the most important enabler or potential barrier to adolescent-specific group ANC/PNC.

Perspectives of PPPAGs: PPPAGs expressed enthusiasm about the idea of participating in adolescent-specific group ANC/PNC sessions. Nine out of 13 girls voiced clear support for group-based ANC/PNC, citing perceived benefits such as emotional comfort, peer learning, and mutual encouragement.

"We can learn a lot from each other. By listening to others' experiences and sharing our own, we can support each other… every girl in the group can benefit.", (Postpartum adolescent, 18, Tarakai, Razar).

"Yes, absolutely. We can learn a lot from each other. By listening to others' experiences and sharing our own, we can support each other. It's not just about me; every girl in the group can benefit from the experiences of others.", (Pregnant adolescent, 17, Yar Hussain West, Razar)

"If we are all the same age, we would be more comfortable talking openly and learning new things from each other. We would be able to share our problems and discuss them.", (Postpartum adolescent, 19, Topi East, Topi)

"I would feel comfortable discussing everything openly without feeling shy.", (Pregnant adolescent, 18, Jehangira, Lahor)

However, six out of 10 of the respondents noted would-be personal or familial challenges in attending group sessions. One girl stated,

"There could be difficulties from family members or from my husband. Such groups have never been formed here before.", (Postpartum adolescent, 18, Tarakai, Razar)

Notably, nine out of 10 PPPAGs mentioned that permission from husbands and in-laws would be essential for participation, though four girls believed they could navigate this through family dialogue, especially with the support of their MILs. Only one girl explicitly stated she would not feel comfortable in a group, suggesting that shyness may remain a barrier for some girls:

"No, I don't think I could learn anything from other girls in the group, and I wouldn't be able to make them feel comfortable because I feel shy myself. I might also face difficulties from my husband. He may not give me permission, and that could create problems.", (Pregnant adolescent, 17, Saleem Khan, Swabi)

Adolescent-specific group ANC/PNC models were perceived as a promising potential modality for enhancing peer learning and adolescent-friendly care. However, successful implementation would face significant feasibility challenges. Foremost among these is the need for family permission—nine out of 10 PPPAGs indicated that permission from husbands and in-laws would be essential for participation, and six out of 10 noted personal or familial challenges in attending group sessions. Additional structural and cultural constraints include community norms restricting girls' mobility, the absence of adolescent-specific spaces, limited numbers of PAGs per catchment area, and a lack of existing support and training for HCPs to facilitate group care.

3.3.4. TOOLS

This subsection examines the tools, materials, and systems that support or hinder adolescent-friendly ANC/PNC delivery, including IEC/BCC materials, record-keeping challenges, age-disaggregated data gaps, and Computerized National Identity Card (CNIC)-related barriers.

IEC/BCC Materials

A significant challenge cited by HCPs is the absence of adolescent-specific information, education, and communication (IEC) and behaviour change communication (BCC) materials. In the absence of printed or visual aids, providers rely heavily on verbal explanations and personal experience to communicate essential maternal health information. Spending additional time with adolescents was identified as a common practice to explain ANC concepts patiently and repeatedly, particularly in the absence of age-appropriate IEC and BCC materials.

"We do not have materials, so I talk to them based on my experience.", (WMO, Gabsani, Topi)

"Most of the information is provided verbally. But we do not have any additional facilities specifically for adolescent pregnant girls.", (CMW, Swabi Khas, Swabi)

"I don't have any resources through which I can explain things properly. That's why people don't stay long, they just want to leave quickly and go home.", (CMW, Kalu Khan, Razar)

Observational data from ANC sessions at health facilities reinforced these concerns. In seven out of 10 observed ANC sessions in public and private health sector facilities, no educational materials related to pregnancy, ANC, or nutrition were displayed on facility walls, and in the three cases where materials were present, they did not specifically target adolescents.

Record-Keeping, Age-Disaggregated Data, and CNIC Barriers

Challenges are compounded by the lack of tools and systems to support consistent record-keeping and age-specific data, particularly in cases where adolescent girls do not possess Computerized National Identity Cards. This absence of standardized identification limits the ability of HCPs to accurately record and track adolescent-specific data across the health system, hindering both individual continuity of care and population-level monitoring.

The reported frequency of encountering pregnant adolescents varied across providers. Among WMOs, LHVs, and CMWs, some reported seeing two to three PAGs per day, while others said they encountered only one per month, or described such cases as “rare”. One CMW from Razar mentioned seeing five to six PAGs per month, while another from Topi specified meeting around 15-20 over a nine-month period. In a rural area of Lahor, a HCP reported to encounter between one and two PAGs each month. These figures should be interpreted with caution, as data on total patient load per provider was not collected in this formative research, limiting the ability to contextualize reported encounter frequencies as proportions of overall caseload.

4. Discussion

4.1. Interpretation of findings

This FR provides key insights into the ANC/PNC experiences of PPPAGs in Swabi District, KP. While reported satisfaction with services was generally high, important gaps were identified in the quality, consistency, and adolescent-responsiveness of care. These gaps affect the full continuum of care—from care-seeking to service delivery and adherence to recommendations.

Many challenges identified—such as inconsistent counselling, limited awareness, and barriers to accessing care—are not unique to adolescents and were also observed in the AMMI project among all pregnant women. However, these are amplified for adolescents due to limited autonomy, early marriage, and lack of recognition of their specific needs within households and the health system.

HEALTHCARE PROVIDER KNOWLEDGE, ATTITUDES, AND PRACTICES.

HCPs generally demonstrated positive attitudes toward PPPAGs, with most showing empathy and no overt stigma. This presents an opportunity to strengthen adolescent-responsive care. However, providers reported limited training, tools, and guidance specific to adolescent health, particularly in nutrition, mental health, and counselling.

Counselling was often generic, with limited adaptation of content for adolescents. Observations showed inconsistencies in service delivery, including anaemia screening, supplementation guidance, and counselling quality. These gaps reflect broader system-level challenges rather than adolescent-specific issues alone.

Differences across provider cadres were noted, with some adapting communication styles or offering more individualized support. However, these practices were not standardized. Service delivery was further constrained by workload, and lack of adolescent-focused materials.

PPPAGS' EXPERIENCES: ACCESS, CARE-SEEKING, AND ADHERENCE.

PPPAGs were typically married early, had limited education, and low decision-making power. These factors reduced their ability to independently seek care and follow recommendations.

Access to services was strongly influenced by family accompaniment, often limiting adolescents' direct interaction with providers. Care-seeking was mixed, with some proactive engagement but also delayed or reactive use of services, particularly when no complications were perceived.

Observations found inconsistencies in delivering nutrition services. Knowledge gaps were evident with mixed messages on diet and supplementation and limited information on side effect management. Family support, particularly from MIL and husbands, played a significant role innutrition related decisions.

PRACTICAL CONSIDERATIONS FOR ADOLESCENT ENGAGEMENT, INCLUDING GROUP ANC/PNC MODELS.

Group-based ANC/PNC models for adolescents were viewed positively by both families and providers, with perceived benefits including peer support and improved learning. However, feasibility challenges were noted, including the need for family permission, logistical barriers, and limited numbers of adolescents per catchment area. Any implementation would require careful adaptation and piloting.

FAMILY PERCEPTIONS, MOTIVATIONS, AND OPPORTUNITIES.

Families generally valued ANC but often viewed care as necessary only when complications arise, particularly for postnatal care. Awareness of recommended PNC practices was low, and home-based care aligned with cultural practices was often considered sufficient.

Dietary practices were shaped by traditional beliefs and misconceptions, including food restrictions and preferences that may not align with nutritional guidance. Misconceptions about MMS were also reported.

Family members, particularly MIL, played a central role in decision-making, often limiting adolescents' agency. Most PPPAGs had little or no role in healthcare decisions, and this dynamic was widely accepted as normative.

GENDER NORMS, SOCIAL INFLUENCES, AND INTERSECTING IDENTITIES.

Gender norms significantly influenced adolescents' mobility, access to services, and decision-making. Restrictions on independent movement were common, reinforcing reliance on family members and limiting engagement with health services.

Early marriage and school dropout further constrained access to information and services. Limited exposure to health education including SRHR and lack of adolescent-specific focus within existing systems contributed to gaps in knowledge and care.

System-level challenges, including limited mechanisms for identifying and tracking adolescent pregnancies, further hinder targeted service delivery. Overall, adolescents' specific needs remain insufficiently addressed within existing maternal health systems.

4.2. Strengths and limitations of the study

A key strength of this FR is its multidimensional design, integrating perspectives from PPPAGs, HCPs, family members, and educators across rural and urban sites. The use of triangulated methods, including IDIs, FGDs, ANC observations, exit interviews, and JM, provided a comprehensive understanding of barriers and enablers that PPPAGs face in accessing adolescent-friendly care, as well as for HCPs in delivering that care. While the sample size for this FR was relatively small, careful attention was paid to ensure representation across Swabi District and work toward saturation in data collection.

Key limitations include:

- Recruitment challenges for 10–14-year-old PPPAGs (only two recruited), limiting age-segmented analysis. Possible reasons include low numbers, data collection timing, and families' hesitance given the legal age of marriage.
- Community observations were conducted with CMWs but not with LHWs. This is a limitation because LHWs are part of the public system and play an important community outreach role in the early identification of pregnancies, facilitating timely ANC uptake, providing follow-up and counselling, and linking households with facility-based services.
- All PPPAG participants were married; unmarried pregnant adolescents face additional stigma and are largely absent from ANC in Swabi, and their experiences would likely differ substantially.
- The concept of "adolescence" as a distinct life stage is not universally recognised in Swabi's cultural context and may be seen as an externally imposed notion, potentially influencing how respondents understood questions framed around adolescent-specific needs.
- The inclusion of higher-level facilities (Category C and D hospitals) in the sample, which were not part of the AMMI RCT and may have different counselling quality and service delivery priorities compared to BHUs, may have influenced findings on service quality and HCP practices.
- No PNC observations: Postnatal interactions were not observed, preventing validation of postpartum nutrition counselling, mental health support, breastfeeding support, and SRHR/birth spacing messaging.
- No LHW sessions were observed (LHWs participated in FGDs, not IDIs, limiting triangulation)—a notable gap given AMMI's finding that LHWs are critical for ANC quality. LHSs were interviewed

but do not provide direct clinical care; their perspectives reflect supervisory rather than service delivery roles.

- No husband accompaniment was observed during ANC sessions, consistent with cultural norms in Swabi.
- Probing limitations: Additional time reportedly spent with PPPAGs and distinctions between IFA and MMS were not systematically explored.
- Limited cross-analysis: Small sample size and lack of socioeconomic data restricted analysis of factors such as education, provider type/experience, and family context.
- Self-efficacy was not formally measured.
- Social desirability bias may have influenced provider and family responses, though private interviews and gender-sensitive data collection aimed to mitigate this.
- Findings may be context-specific to Swabi District and may not fully represent other areas of Pakistan with different cultural or service delivery contexts.

These limitations should be kept in mind when interpreting the findings and when planning future research or monitoring of adolescent maternal health services in Pakistan and elsewhere. At the same time, many of the findings and recommendations can be adapted and applied more broadly to meet the needs of adolescents and health systems.

Conclusion

This research provides critical insights into how the ANC/PNC care pathway for PPPAGs in Swabi District and beyond can be strengthened—from care-seeking to service experience to uptake of health and nutrition recommendations. While many healthcare providers demonstrated empathy toward PPPAGs, adolescent-responsive service delivery remains constrained by gaps in training, tools, and continuity of support. These gaps are not unique to PPPAGs, but they are compounded for adolescent girls by their developmental stage, limited autonomy, and lack of recognition as a distinct group with specific physiological and psychosocial needs.

The findings also show that gender norms, accompaniment expectations, and family decision-making structures continue to shape whether and how PPPAGs access and act on ANC/PNC and nutrition advice. Postnatal care remains a particular gap, often treated reactively rather than as a routine part of care, while younger adolescents are least visible in both data and programming despite heightened vulnerability.

This FR provides useful evidence for guiding the development of recommendations for government and service providers to tailor adolescent-friendly ANC/PNC in Swabi district and beyond so it supports a positive pregnancy and postpartum experience. In line with the conceptual framework shared in this report, broader policy reforms and shifts in social norms are critical to fully address the needs of pregnant adolescents in addition to improving nutrition specific health system-based ANC services. Without targeted action, this vulnerable population will continue to be overlooked and underserved, with far-reaching consequences for maternal and newborn health outcomes.

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