Transformations in Women's Contraceptive Use: Discontinuation and Switching Methods in Punjab

POLICY DOCUMENT FOR PROGRAMME IMPROVEMENTS

National Institute of Population Studies, Training & Research (NIPST&R)
Islamabad

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PREFACE

Pakistan has consistently demonstrated its commitment to international agreements, including the ICPD Plan of Action (1994) and the ICPD25 Nairobi Summit (2019). In alignment with these global goals, the Government of Punjab has pledged to increase the Contraceptive Prevalence Rate (CPR) to 64% by 2030. Achieving this target necessitates comprehensive strategies addressing both demand-side and supply-side factors to ensure equitable access to quality reproductive health services for all women.

Contraceptive discontinuation and switching remain critical issues in family planning, highlighting disparities in women's ability to exercise their reproductive rights. In Punjab, these behaviors are influenced by a complex interplay of barriers and facilitators arising from supply-side and demand-side factors.

Therefore, the current report based on the four survey cycles (2020-2023), of the Longitudinal Panel Study conducted by the National Institute of Population Studies, Training & Research (NIPST&R), Islamabad, offer valuable insights. The PMA longitudinal panel survey provides a unique opportunity to track contraceptive behaviors of the same women of reproductive age (15-49) over a four-year period, enabling a detailed analysis of changes and transitions in contraceptive use, discontinuation, and switching.

As Pakistan progress towards achieving international commitments, including the ICPD Plan of Action and the Sustainable Development Goals, this report provides evidence-based insights to guide policymakers, program implementers, and stakeholders in enhancing and improving family planning services.

NIPST&R extends its heartfelt gratitude to Dr. Tauseef Ahmed, Technical Advisor, PMA, for his invaluable contributions to strategy development, and report writing, which were instrumental in the successful completion of this detailed report spanning panel and cross-section of the four waves of PMA study in Punjab.

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(Samina A. Hasan)
Executive Director, NIPS

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(Rabia Zafar)
Director, NIPS

1. INTRODUCTION

For decades, Pakistan's policy focus on fertility reduction has been intertwined with efforts to enhance contraceptive use and address unmet family planning needs. Despite legislative and multi-sectoral initiatives, the outcomes on reproductive health and rights have remained uneven. Pakistan has consistently engaged in international commitments, including the ICPD Plan of Action (1994) and the ICPD25 Nairobi Summit (2019), emphasizing the importance of equitable access to contraceptive methods, addressing unmet needs, and promoting informed and voluntary decision-making in family planning. Contraceptive use not only supports women in avoiding unintended pregnancies but also helps them achieve their desired family size, contributing to improved reproductive health outcomes and broader societal benefits. These commitments also prioritize enhancing the quality of reproductive health services, reducing disparities, and increasing investments in family planning to ensure all individuals can exercise their reproductive rights effectively.

Through its international commitments and national planning frameworks, Pakistan has pledged to uphold reproductive health rights and expand access to family planning services. Efforts under the ICPD Programme of Action (1994) and subsequent global initiatives such as FP2020 and the ICPD+25 Nairobi Summit (2019) aim to eliminate the unmet need for contraception and ensure equitable access to reproductive health services by 2030. Despite these commitments, significant barriers persist, impeding the realization of reproductive rights.

A key challenge lies in the quality of family planning services. Many facilities lack adequately trained staff, resulting in poor counseling and insufficient follow-up with users. Women often receive inadequate information about contraceptive methods, potential side effects, and appropriate actions to address concerns or seek assistance. Poorly equipped facilities, particularly in remote areas, fail to provide comprehensive family planning options, leading to dissatisfaction and high discontinuation rates. Supply chain disruptions and limited availability of preferred methods further constrain women's ability to make informed and voluntary choices. Provider biases and ineffective communication exacerbate these challenges, leaving many users without the support needed to continue or switch methods effectively. Misconceptions about contraceptives, compounded by fear of side effects or long-term health concerns, often discourage sustained use. Geographic, financial, and logistical barriers further limit access, particularly for marginalized populations. Changes in reproductive intentions, such as a renewed desire for more children, and intra-family dynamics—including limited autonomy for women in decision-making—significantly influence contraceptive use patterns.

These gaps undermine Pakistan's commitments to RH Rights, particularly the right to accurate, comprehensive information about contraception and the right to receive care that is free from coercion, bias, or judgment. Addressing these systemic challenges is essential to advancing the principles of reproductive health rights, ensuring that every individual can make informed, voluntary decisions about their reproductive health.

Despite the efforts to enhance contraceptive prevalence in Punjab, challenges remain in addressing what Jain A. described as the "leaking bucket" phenomenon—contraceptive discontinuation—which reduces the impact of family planning programs (Jain 2014)[i]. Women who begin using contraception with the intention to space or limit pregnancies often discontinue without adopting another method. While not all discontinuation is problematic, understanding the reasons for discontinuation is critical. Some women stop using a particular method due to side effects or acceptability issues but may switch to a more suitable alternative. Others, however, discontinue without switching, increasing the risk of unintended pregnancies and unmet need for family planning.

Contraceptive discontinuation is a significant public health issue in Pakistan, with implications for reproductive health outcomes, fertility rates, and the overall effectiveness of family planning efforts. The disruption in contraceptive use are actually interruptions in contraceptive use stemming from barriers to informed and voluntary choices. Furthermore, transitioning contraceptive methods that aligns with individuals' preferences and needs, ensuring respect for their rights and health need to be better understood to support users for continuity of use. Clarity in understanding and analyzing these two status of users' (discontinuation and switching) patterns offers critical insights into the barriers women face and the reasons for unmet needs. Many women disrupt contraceptive use despite a desire to avoid pregnancy, which underscores the importance of addressing service gaps and ensuring that women can make informed, autonomous decisions about their reproductive health. This phenomenon has broader implications beyond individual and family-level outcomes. Contraceptive disruption and stopping contributes to unmet family planning needs and unintended pregnancies, hindering national progress toward achieving fertility goals. Understanding the factors contributing to disruption and discontinuation—such as method acceptability, service quality, and the availability of alternatives—provides an evidence base for improving family planning programs.

Contraceptive discontinuation is not well understood yet critical challenge for family planning in Pakistan. Discontinuation often occurs early in a woman's contraceptive journey and without consultation with healthcare providers, highlighting the importance of addressing method-specific challenges and service quality. By addressing these issues, family planning programs can effect contraceptive use decision making for fertility outcomes that account for women's desire to space and limit and ensure women exercise their reproductive rights especially to address unintended pregnancies and improve the overall effectiveness of family planning initiatives.

2. BACKGROUND

For the last two decades, Pakistan has struggled to ensure equitable and sustained access to family planning services, leaving a significant gap in meeting women's reproductive health needs. Despite an increase in the proportion of women who have ever used contraception—rising from 21% in 1990-91 to 64% in 2017-18—many women face challenges in maintaining consistent and voluntary use of contraceptives. The widespread discontinuation of modern methods highlights systemic barriers, including lack of informed choice, inadequate counseling, limited access to quality services, and insufficient follow-up mechanisms to address women's evolving needs.

The high rate of contraceptive discontinuation points to significant shortcomings in upholding women's right to reproductive autonomy and health. While more women are expressing a desire to space or limit births, as reflected by the growing proportion who initiate contraceptive use, the substantial rise in discontinuation—from 12% in 1990-91 to 30% in 2017-18—indicates critical gaps in service quality and method availability. This not only disrupts the continuity of contraceptive use but also leaves women vulnerable to unintended pregnancies, underscoring the need for comprehensive, rights-based family planning programs that prioritize accessibility, equity, and respect for individual choices.

Unintended pregnancies, often resulting from unmet contraceptive needs or discontinuation, represent a violation of women's reproductive rights. These pregnancies can lead to adverse health outcomes, including unsafe abortions, which pose a significant threat to women's health and well-being. Addressing this challenge requires a shift in focus towards sustained contraceptive use through informed decision-making, respectful care, and robust systems of support. Enhancing the availability of diverse contraceptive options, improving counseling services, and fostering environments where women can exercise their rights to bodily autonomy and informed choice are crucial to empowering women and advancing their health and well-being. Research in Pakistanii found high rate of induced abortion deteriorating women health status1. Addressing these issues is vital for achieving public health goals and improving overall reproductive health outcomes. Identifying the reasons behind high discontinuation rates can help address barriers such as side effects, health concerns, and service delivery issues. For instance, the series of Pakistan Demographic and Health Surveys highlight that desire for more births, side effects/health concerns and method failure are primary reasons for discontinuation.

Contraceptive discontinuation and switching are critical issues in family planning, reflecting disparities in women's ability to exercise their reproductive rights. In Punjab, these behaviors are shaped by barriers and facilitators arising from a complex interplay of supply-side and demand-side factors. These include inequities in access to contraceptive methods, limited availability, and gaps in counseling quality provided by healthcare systems. Cultural and social norms, alongside individual preferences and misinformation about contraceptives, further influence women's decision-making.

Understanding these behaviors is essential to exploring how systemic challenges contribute to contraceptive discontinuation and switching. Misinformation, inadequate counseling, and

[1] In Pakistan, the unintended pregnancy rate declined 21% between 1990–1994 and 2015–2019. During the same period, the abortion rate increased 64%. The share of unintended pregnancies ending in abortion rose from 30% to 61%.

inequitable access to a diverse range of methods impact women's ability to make informed decisions. These factors collectively influence women's ability to meet their reproductive health needs in ways that align with their preferences and life circumstances, underscoring the importance of recognizing these behaviors as part of a broader rights-based discourse in family planning.

Factors Influencing Method Switching and Discontinuation Behaviours

Women's contraceptive use patterns are shaped by a variety of personal, social, and health system factors. Patterns of users transitioning methods or disruption in use reflect individual experiences with side effects, changing reproductive goals, life events, and access to healthcare services.

Access and Availability: In many settings, access to certain contraceptive methods plays a crucial role. For example, when IUDs or implants are not readily available or affordable, women may switch to methods that are easier to access.

Experiencing Side Effects: As mentioned, side effects from hormonal contraceptives are a primary driver of switching. Women may move from one method to another in search of fewer side effects or better tolerability.

Life Events: Major life events, such as marriage, childbirth, or changes in employment, often trigger method switching. For instance, after childbirth, many women switch to LARCs to avoid another pregnancy soon after.

Husband's Influence and Gender Dynamics: Husband's contraceptive preferences and relationships significantly influence switching and discontinuation. Women may change methods based on his comfort level or to align with their husband's fertility preferences.

Health System Factors: Counseling quality, follow-up services, and the availability of different methods at health facilities also play a role. Inconsistent availability of methods can lead women to switch based on what is in stock rather than personal preference.

Interventions that provide comprehensive counseling, improve access to a wide range of contraceptive options, and support women in managing side effects can reduce the need for frequent switching and improve contraceptive continuation rates.

Evidence from Other Countries – Level, Reasons and Measures Taken

Several studies on contraceptive discontinuation have reflected important benefits in improving family planning services, reducing unintended pregnancies, and achieving better reproductive health outcomes. Here are a few examples of such studies - the overall 12-month discontinuation rates noted for Bangladesh was 49 percent (2004), Egypt 32 percent (2005), and Kenya 36 percent (2003), and Indonesia 21 percent (2002/03)[iii].

Studies on contraceptive discontinuation were conducted in Bangladesh, revealed that side effects, lack of access to information, and quality of services were major factors for discontinuation. Based on the findings, the government of Bangladesh improved counseling services, enhanced the training of healthcare providers, and introduced community-based distribution models to ensure continuous contraceptive access. This led to a significant increase in contraceptive prevalence and a reduction in fertility rates.

In Egypt studies identified that many women discontinued contraceptive use due to side effects and inadequate information. In Egypt, a longitudinal study found that switching from OCPs to injections or IUDs was common as women experienced side effects or sought longer-term solutions. However, discontinuation rates remained high due to side effects and cultural factors. Strengthening of family planning services especially the quality of counseling, improving the availability of a broader range of contraceptive methods, and follow-up services resulted in improved contraceptive prevalence, and fertility rates began to decline over time.

In Kenya research noted discontinuation was often due to service delivery issues, such as stock-outs and poor access to healthcare facilities[iv]. Furthermore, a large number of women discontinued contraceptives without switching to another method, contributed to high fertility. Using these insights family planning programs was reformed by integrating contraceptive services with other health services, enhancing supply chain management, and expanding community health worker programs. These changes contributed to a steady rise in contraceptive prevalence and a reduction in unintended pregnancies. Research in Kenya further highlighted that a significant number of women switch from hormonal methods to IUDs, particularly after experiencing side effects from injections or pills. Many women also discontinue hormonal methods in favor of natural methods, though this is less effective in preventing pregnancy.

In Indonesia, studies revealed that discontinuation was largely due to cultural and social factors, beside concerns about side effects. Targeted communication campaigns and improved community engagement through were introduced local health workers. The Program also improved contraceptive supply chains and counseling services, resulting in higher contraceptive continuation rates and lower fertility.

A research study in India showed that women frequently switch from short-term methods like pills and condoms to long-term methods like sterilization, often after completing their desired family size. However, discontinuation of short-term methods due to side effects remains high.

Research in Mexico revealed that discontinuation was partly due to inconsistent access to contraceptive methods, especially in rural areas, and insufficient follow-up care. The studies also stressed the importance of method mix and user education in maintaining contraceptive use. Mexico responded by enhancing healthcare infrastructure in rural areas, ensuring a consistent supply of contraceptives, and training healthcare providers to offer comprehensive counseling. These efforts led to improved contraceptive continuation rates and helped reduce the fertility rate in the country.

3. OBJECTIVES OF THE STUDY

The study aims to identify the key factors (both supply and demand-side) that lead to the discontinuation or switching of contraceptive methods in Pakistan, such as side effects, health concerns, service quality, and social influences. The study objectives are outlined with a focus on women's behavior toward contraceptive discontinuation or switching and leveraging longitudinal panel and cross-sectional data:

- To analyze the behavioral patterns of women regarding contraceptive discontinuation and switching over time, utilizing longitudinal panel data to track individual trajectories and cross-sectional data to provide a broader contextual understanding.
- To examine the interplay of socio-cultural norms, background characteristics, and systemic factors (e.g., side effects, quality of counseling, and service delivery attributes) influencing contraceptive use behaviors, discontinuation, and switching among women in Punjab.
- To identify inequities in access to contraceptive services and barriers such as misinformation, inadequate counseling, or restrictive social norms that disproportionately affect women's ability to make informed decisions about method use and continuation.
- To evaluate the role of healthcare providers and facilities in contraceptive discontinuation, focusing on the quality of counseling, service availability, and follow-up support.
- To investigate the role of specific service delivery attributes and contraceptive method characteristics in promoting or hindering sustained use, as well as their association with method discontinuation or effective switching.
- To contribute to the understanding of gaps in family planning programs by studying women's longitudinal contraceptive behavior, offering insights into unmet needs, unintended pregnancies, and their implications for fertility behaviour.

4. METHODOLOGY

Analyzing Contraceptive Use Patterns through Cross-Sectional and Longitudinal Approaches The study of contraceptive discontinuation and switching is complex, requiring examination through both cross-sectional and longitudinal perspectives. Cross-sectional data, such as those collected in the Pakistan Demographic and Health Surveys (PDHS) since 1990-91, provide nationally representative picture of contraceptive use. These data sets are instrumental in identifying prevalence rates, patterns, and associations related to contraceptive use and discontinuation. However, their utility is limited to capturing correlations at a single point in time; they do not establish causality. For example, while PDHS data can indicate a high prevalence of discontinuation associated with side effects, they cannot confirm whether side effects directly caused discontinuation or were reported as post-hoc justifications.

In contrast, longitudinal panel surveys, which follow the same individuals over time, allow for a deeper exploration of contraceptive behaviors. These data are critical for understanding the evolving dynamics of contraceptive use, including the triggers for discontinuation, the conditions under which women switch methods, and the duration of use for new methods. By tracking individual decisions over time, longitudinal studies provide insight into causality, such as the role of side effects, access barriers, or life events in discontinuation and switching. They also shed light on the nuanced decision-making processes that influence whether women continue, switch, or stop using contraceptives.

A notable recent effort by the National Institute of Population Studies, Training & Research in Islamabad utilized a longitudinal panel framework to collect data over four years from selected households in Punjab. This dataset offers a unique opportunity to analyze contraceptive behaviors comprehensively, uncovering the interplay of factors that drive changes in use over time. It allows researchers to move beyond descriptive statistics to explore causal relationships and the impact of interventions.

This research employs both cross-sectional and longitudinal data to provide a comprehensive understanding of contraceptive use. Cross-sectional data from PDHSs capture national-level trends, offering insights into overall prevalence and patterns. Meanwhile, longitudinal panel data, collected using the Performance Monitoring for Action (PMA) framework in Punjab, enable a detailed examination of individual-level changes in contraceptive behaviors, particularly discontinuation and switching. Together, these methodologies complement each other, providing a robust framework to analyze contraceptive dynamics at both population and individual levels.

PDHS - Survey years	**Number of currently married women interviewed**
1990 - 91	6,364
2006 - 07	9,556
2012 - 13	12,937
2017 - 18	11,831

Data Sources and Analytical Framework

This study utilizes both cross-sectional and longitudinal panel data to comprehensively analyze contraceptive discontinuation and switching behaviors in Punjab, Pakistan. The analysis begins with cross-sectional datasets, offering population-level snapshots, and progresses to longitudinal panel data, enabling an in-depth examination of individual behaviors over time.

Cross-Sectional Data Sources

The Performance Monitoring for Action surveys employ a distinct sampling framework, yielding independent estimates specific to Punjab that are not directly comparable with national PDHS data. These datasets are instrumental in identifying prevalence rates, trends, and patterns related to contraceptive use, discontinuation, and switching.

Each PMA survey cycle was conducted with a two-stage cluster sampling design, selecting 52 enumeration areas (EAs) across Punjab were drawn from the Pakistan Maternal Mortality Survey (PMMS) 2019 master sampling frame — 42 households from urban and 35 from rural clusters. A sample size of approximately 1,981 households was maintained, with slight modifications to replace women lost to follow-up (e.g., migration, aging out, recently widowed, divorced, separated, were not at home, or refusal to participate) to ensure a consistent sample size for cross-sectional estimates. Over four survey cycles (2020-2023), these cross-sectional datasets were used to compare contraceptive behaviors and patterns across years. The table below summarizes the sample sizes:

PMA Punjab Survey - Years	Number of currently married women		
	Number of Households	Total Eligible Women	Matched cases with Phase I
2020	1970	2,366	- - -
2021	1980	2,377	1674
2022	1979	2,360	1681
2023	1935	2308	1,411

Longitudinal Panel Data

The PMA longitudinal panel survey provides a unique opportunity to track contraceptive behaviors of the same women over a four-year period, allowing for the analysis of changes and transitions in contraceptive use, discontinuation, and switching. Initially, 2,366 women from 1,970 households were interviewed in Phase I (2020). Using a matching technique (case IDs), a total of 1,411 women were followed consistently across all four survey Phases, enabling the creation of a robust longitudinal dataset.

Analytical Approaches

The study employs different methodologies for cross-sectional and longitudinal analyses:

1. **Cross-Sectional Analysis**:

- Data from PMA surveys are analyzed annually to examine trends, prevalence rates, and factors associated with contraceptive discontinuation and switching.
- Simple tabulations and graphical representations are used to present year-on-year variations in contraceptive behaviors.

2. **Longitudinal Panel Analysis**:
    - This analysis tracks the same women over time, employing discrete-time analysis to investigate the temporal sequence of events influencing discontinuation and switching.
    - Discrete-time logistic regression models are utilized to estimate the hazard of discontinuation during specific time intervals. These models incorporate time-varying covariates such as side effects, life events, and access barriers, offering insights into causality and behavioral changes over time.

Steps in the Analytical Process

1. **National Trends and Patterns**: Using PDHS data, the study begins by examining contraceptive discontinuation and switching behaviors at the national level, identifying key factors and reasons.
2. **Provincial Cross-Sectional Analysis**: PMA cross-sectional data for Punjab are analyzed to explore annual trends, patterns, and associated factors related to contraceptive use, discontinuation, and switching.
3. **Longitudinal Analysis of Individual Behaviors**: Panel data from Punjab are used to delve deeper into the contraceptive decision-making processes of the same women over four years, uncovering causal relationships and behavioral transitions.

This structured approach ensures a comprehensive understanding of contraceptive behaviors, enabling comparisons across methodologies and providing robust evidence for policy and programmatic interventions.

5. FRAMEWORK FOR ANALYSIS

To develop an analytical model using RH Rights framework for understanding the factors that affect and lead to contraceptive discontinuation or method transitioning, can categorize these elements into three main domains: supply-side factors, demand-side factors, and demographic/ social factors. Discontinuation contraceptive use while in need was defined as stopping a method without the intent to become pregnant while at risk of unintended pregnancy. Below is a comprehensive model that incorporates these aspects:

Framework for Analyzing Contraceptive Discontinuation and Switching Behaviours

Supply-Side Factors

Supply-side elements reflect the availability, quality, and accessibility of contraceptive services and products. These include:

- **Quality of Service Delivery:** Poor counseling due to provider biases or inadequate training in FP technologies influences discontinuation. Many users discontinue due to unmanaged side effects that could be addressed through proper follow-ups.
- **Availability of Contraceptive Methods:** Frequent stockouts or the limited availability of preferred methods can push women to discontinue or switch to less effective alternatives[2]. Poor preparedness of health facilities to offer comprehensive family planning (FP) services exacerbates this issue.
- **Service Accessibility:** Geographic, financial, and logistical barriers significantly limit women's access to services, leading to contraceptive discontinuation or switching. These barriers include distance to health facilities, and transportation costs.

Demand-Side Factors

Demand-side factors focus on user-related issues and the decision-making processes affecting contraceptive use:

- **Side Effects and Health Concerns:** Fear of, or actual, side effects remain a predominant reason for discontinuation. Misconceptions about the long-term health impacts of contraception—often due to poor counseling—compound these concerns.
- **Reproductive Intentions:** A change in a woman's reproductive goals (e.g., wanting more children) can lead to discontinuation. This shift often reflects broader life changes, intra-family dynamics, or evolving personal preferences. In this regard, intra-family dynamics and women's autonomy in decision-making play a critical role in contraceptive use patterns. Family members influencing woman's decision regarding family size play important role.
- **Autonomy and Social Influences:** Women's autonomy in decision-making and family dynamics heavily influence contraceptive use. In many cases, family members or partners play a pivotal role in decisions about contraception.

[2] The PMA Phase I survey included 96 Dept. of Health facilities across Punjab. The Survey was conducted in Sept-October 2020. The Department of Health has a large network of facilities for which two indicators were picked to reflect their performance regarding family planning. Average number of stock-out days were: condoms (205 days), pills (189 days), IUCD (264 days), and ECP (458 days). Health facilities reflected very low FP clientele during 2020.

Demographic and Social Factors

Broader demographic and social elements shape contraceptive behaviors:

- **Age and Parity:** Younger women or those with fewer children are more likely to discontinue contraceptives due to the desire for additional births. Conversely, women who have achieved their desired family size often demonstrate greater consistency in contraceptive use.
- **Education and Economic Status:** Higher levels of education among women are linked to better knowledge and consistent contraceptive use. Economic disparities influence the affordability of contraceptives, with wealthier households more likely to access and use services.
- **Urban vs. Rural Contexts:** Urban women generally have better awareness, access to services, and lower discontinuation rates compared to rural women, where cultural norms and limited resources prevail.
- **Cultural and Religious Influences:** Community norms, peer pressure, and religious objections to certain methods significantly impact contraceptive behavior. Myths and misinformation about contraception often contribute to discontinuation or a shift to "socially acceptable" methods.

The intersection of supply-side, demand-side, and demographic factors creates a multifaceted landscape influencing contraceptive discontinuation and switching. Addressing these elements holistically is essential for reducing discontinuation rates, encouraging method switching where appropriate, and improving contraceptive continuity.

Contraceptive Transitioning (Switching) and its Effects

Women do switch contraceptive methods multiple times throughout their reproductive lives due to various reasons, including side effects, changes in reproductive goals, life circumstances, or dissatisfaction with the current method. Studies across different countries reveal specific patterns of method switching and dropping, influenced by supply side issues or demand aspects encompassing cultural, economic, and health system factors. Common patterns in method switching include:

1. Initial Preference for Short-Term Methods: Many women initially choose oral contraceptive pills (OCPs) due to their easy availability, more familiarity and awareness, and non-invasive nature. However, side effects like nausea, weight gain, or mood swings often lead to women prefer to switch to other methods or discontinuation. Condoms too are commonly used early in a woman’s reproductive life, especially by younger low parity women also due to ease of availability, better awareness and greater promotion. The method is often switched out due to concerns about reliability or convenience (at times failure leading to unintended pregnancy).
2. Switching to Long-Acting Reversible Contraceptives (LARCs): Studies reveal that as women become more comfortable with family planning and have given birth to a child, they often switch from short-term methods like pills (after experiencing side effects from hormonal methods) or condoms to long-term methods like intrauterine devices (IUDs) or implants (depending on availability and access). These methods are favored for their convenience and efficacy in preventing pregnancy over extended periods without requiring daily attention

(providing desired longer spacing between birth and pregnancy). Women may opt for IUDs after trying OCPs or injections when they seek longer-term protection.

3. Discontinuation or switching due to Side Effects: One of the leading reasons for switching or discontinuing contraception is the experience of side effects, particularly from hormonal methods like pills, injections, or implants. Weight gain, mood changes, and irregular bleeding are common complaints. Some women may switch to non-hormonal methods like copper IUDs as a result. Properly trained health service staff and adequate counseling to women is essential to help in such a switching of methods to ensure continuity of use. Some women go through a cycle of trying different hormonal methods (e.g., switching from pills to injections) before settling on a method or discontinuing altogether.
4. Dropping Methods as Reproductive Goals Change: As women age or attain their desired family size, some may opt for tubal ligation or discontinue contraception altogether. Studies show that women who have achieved their desired number of children or who are nearing menopause are more likely to discontinue reversible methods and opt for sterilization.
5. Reversible to Permanent Transition: For women in Punjab, who have completed their families, permanent method like tubal ligation becomes more common (preferred). Some studies note a pattern where women first switch from short-term to long-term methods, and ultimately to permanent methods.

Sequencing of Factors Influencing Contraceptive Use Behaviours

The elements influencing contraceptive discontinuation and switching can indeed be organized in a time sequence, categorizing them into immediate factors, intermediate factors, and external factors. This categorization reflects how these factors interact over time to influence contraceptive behaviors.

1. **Immediate factors** directly and immediately influence the behaviour and decision to discontinue or switch contraceptive methods. They are typically related to the women's experience with the contraceptive method or immediate circumstances.

    <u>Perceived Method Related Concerns:</u> Side effects, whether real or perceived, often lead to an immediate decision to discontinue use. Furthermore, immediate health concerns related to the contraceptive method can prompt switching or discontinuation. Informed choice is central to SRH rights, ensuring that decisions to continue or discontinue use are based on full understanding.

    <u>Stockouts and Supply Chain Issues:</u> The unavailability of a desired method (at a facility) at the time of need can force an immediate decision to discontinue or switch to an available alternative (even though it may be less effective). A lack of options violates the right to choose freely and can force users into discontinuing or switching to less suitable methods. The right to access the full range of contraceptive methods should be upheld, meaning that supply chain management must ensure the availability of all methods.

    <u>User Satisfaction</u>**:** Respecting users' autonomy in selecting a contraceptive method that best fits their needs and lifestyle is critical. Services should be designed to empower users to choose, continue, or switch methods as per their informed preferences, without external pressure.

2. **Intermediate factors** influence contraceptive behavior over a medium timeframe. They may not cause immediate discontinuation but can lead to it if unresolved.

   Provider Competence and Bias: SRH rights necessitate that provider's offer non-discriminatory, respectful care. Provider biases or lack of competence should not impede an individual's right to choose and continue using their preferred method. Poor counseling or biased advice by service provider gradually erodes confidence in a method among women, leading to discontinuation or switching over time. Rights-based counseling can help individuals navigate these pressures while maintaining their autonomy.

   Women's Knowledge and Awareness: Ensuring that individuals are fully informed about their contraceptive options, how to use them, and the implications of discontinuation or switching, supports informed decision-making and autonomy. Knowledge gaps about correct usage or available alternatives might not cause immediate discontinuation but can lead to switching or stopping use after method failure or dissatisfaction.

   Health System Factors (Inadequate Follow-up): Weak support system that lacks client's follow-up or support services may not immediately cause discontinuation but can lead to it when users face unresolved issues or concerns over time. Weak knowledge of service providers regarding contraceptive technology esp its side effects and what measures need to address those need attention.

3. **External factors** are broader background elements, often systemic influences that impact contraceptive use indirectly over the long term. These create an environment that either supports or hinders contraceptive continuation.

   Policy and Regulatory Environment: Supportive policies like integration of family planning to enhance availability through health facilities ensures continuous access to a variety of methods to choose, while restrictive policies including taxation on contraceptive contribute to declines in contraceptive use.

   Resource Availability: Resource Availability shapes the overall accessibility of contraceptives, where long-term economic and financial hardships (low funding for procurement) leads to reduced access and eventual discontinuation.

   Socioeconomic Status and Education: Over time, higher female education and better economic status can lead to more informed and consistent contraceptive use among women, thus reducing discontinuation rates and unmet need for contraception. SRH rights call for equitable access to services regardless of socioeconomic status, which may require subsidized or free contraceptive options and services for low-income populations.

   Urban vs. Rural Residence: The difference in access to healthcare and social norms between urban and rural areas can result in varying long-term patterns of contraceptive use, with rural areas potentially facing higher discontinuation rates due to access issues and poor information among users.

Overall Impact of SRH Rights: Integrating an SRH Rights perspective into contraceptive discontinuation and switching ensures that all individuals in Pakistan can exercise their reproductive rights without coercion, discrimination, or barriers. This perspective: Empowers Individuals (individuals have the knowledge, resources, and freedom), Promotes Equity (addressing systemic barriers), Protects Autonomy (informed choice and voluntary decision-making), and Enhances Service Quality (healthcare providers offer respectful, non-discriminatory care).

Limitation of the Exercise: The analysis basically focuses on information shared by women in her interviews over four years. Though selected Health Dept., Population Welfare and private facilities located in the vicinity of the clusters were surveyed for a number of aspects including stocks, availability of family planning services, competence of service providers, facility preparedness to serve IUCD and implants, clientele served, etc. the analysis / database could not include such aspects. As such, these aspects could not be included in the supply side variables and not part of analysis.

6. RESULTS ON CONTRACEPTIVE BEHAVIOUR

National Level Results

Results are shared initially from national perspective using secondary information derived from Pakistan Demographic and Health Surveys (PDHS). This section presents trend of rates and estimates reflected in published reports.

Table 1: Percent of currently married women responding to knowledge, ever and current use of contraception, discontinuation and unmet need for contraception - Pakistan

PDHS	Knowledge	Ever- Use		Current Use		Discontinuation		Unmet
Survey Years	**Overall**	**Any**	**Modern**	**Any**	**Modern**	**Any**	**Modern**	**Need**
1990-91	78.0	20.3	16.0	11.8	9.0	11.7	- -	28.0
2006-07	96.0	48.7	30.8	29.6	21.7	19.1	9.1	24.9
2012 - 13	99.0	55.0	48.0	35.1	26.1	19.9	21.9	20.1
2017 - 18	99.0	64.2	- -	34.0	25.0	30.2	- -	17.0

Source: NIPS, PDHS 1990-91, 2006-07, 2012-13 and 2017-18.

Series of PDHS survey reveal that though the knowledge regarding family planning is universal, ever-use of contraception rose significantly from just 20 percent in early 1990s to close to two-thirds of all women (64%) by 2017-18 (Table 1). The current use of any or modern contraception reflect a complete status-quo over the last two decades while percent women discontinuing contraception indicate an increase over the years from 12 percent (in 1990-91) to 30 percent (2017-18)[3] [v]. Had due timely attention given to the issue of discontinuation current use rate especially of modern method be much higher. The huge gap reflected by percent women discontinuing contraception was not addressed by necessary programmatic interventions. Continued high percent reflecting unmet need for contraception may also be attributed basically emerging from women who discontinued.

Over the years, tremendous focus was given lowering fertility and contraception and family planning was the key policy and programmatic initiative to control births. The family planning by Population Welfare remained a solo tool till recent years joined by Health facilities in making it available from a much larger network. Like contraceptive prevalence rates over the last two decades, the fertility rate too reflects negligible change from 4.1 in 2006-07 to 3.6 in 2017-18 (Table 2). Interesting to note is that wanted fertility rate among women consistently remained lower over the years. The desire to lower fertility was persistent along with high percent of women discontinuing contraception that led to high unmet need for contraception. The difference between

[3] The 12-month all-modern method discontinuation rate was 12.5% among women enrolled in a project in Pakistan (Karen T. et al. 2020)

actual and wanted fertility reflects unintended births which could have been avoided provided necessary actions to coup with discontinuation were undertaken. Previous studies do reflect high rate of induced abortion among women in Pakistan[4] especially those who experienced unintended pregnancies[vi]. Altogether, these issues point towards low maternal health status in Pakistan, as no solid measures were taken to address the root causes of contraceptive discontinuation.

Table 2: Trends in wanted and actual fertility rates

	1990-91 PDHS	**2006-07 PDHS**	**2012-13 PDHS**	**2017-18 PDHS**
Total Fertility Rate	4.9	4.1	3.8	3.6
Total wanted Rate	4.3	3.1	3.0	2.9
Difference	0.6	1.0	0.8	0.7

A quick review of two PDHS (2012-13 and 2017-18) reveals hardly any difference between various methods that were discontinued (Table 3). Condoms and injectables remain as two key modern methods followed by oral pills that are discontinued by users (within 12 months of initiating its use) while a large percent also discontinue withdrawal method. More than two-thirds of users stop using modern methods, which is surely a serious point to note.

Table 3: Percent distribution of discontinuation of contraceptive methods in the five years preceding the survey

PDHS	**Discontinuations by method**							**Total Cases**
	IUD	**Injectables**	**Pill**	**Condom**	**Rhythm**	**Withdrawal**	**Other**	
2012-13	8%	17%	10%	30%	2%	20%	11%	4,841
2017-18	8%	16%	10%	37%	3%	23%	2%	3,053

Surveys reveal that discontinuation rates were reported to be quite high but it declined from 37 percent (of all episodes) in 2012-13 to 30 percent (in 2017-18) with prominent reason as desire to bear more children (Table 4). Method failure, side effects, and health concerns are noted as three reasons for discontinuation. Summarizing method related reasons, a decline is noted from 25.7 percent (in 2012-13) to 16.7 percent (in 2017-18). The discontinuation due to method related reasons show that 69 percent women (out of total who discontinued) declined to 55 percent. All such reasons contribute to higher risks of unplanned pregnancies and unmet need for contraception.

[4] A recent study conducted by the Population Council in Pakistan (2023) on post-abortion care reveals some concerning statistics regarding abortion. The report highlights that approximately 6.6% of women of reproductive age in Pakistan experienced an abortion in 2023 (around 1.9 million abortions). Punjab had notably high abortion rate showing 7.9%. Enhancing awareness and education about family planning can play a crucial role in reducing the incidence of unintended pregnancies and the subsequent need for abortions.

Table 4: Twelve-month contraceptive discontinuation rates (Among episodes of contraceptive use experienced within the 5 years preceding the survey)

PDHS	Method failure	Desire to become pregnant	Other fertility related reason	Side effects/ health concerns	Wanted more effective method	Other method related reasons	Other reasons	Discontinued due to method related reasons	Discontinued for any reason
2012-13	5.5	9.1	2.3	10.4	2.1	2.2	5.5	25.7	37.1
2017-18	4.7	9.7	3.8	7.3	1.8	1.3	1.6	16.7	30.2

Source: NIPS, PDHS 2012-13 and 2017-18

Method switching is reported by a small percent of women – 7.6 percent in PDHS 2012-13 which declined to 3.4 percent in PDHS 2017-18. Programmatic strategies using innovative counseling initiatives could help address such issues.

Longitudinal Panel Study in Punjab 2020-2023 Results

Series of longitudinal panel surveys were undertaken by the National Institute of Population Studies, Training & Research to support family planning programme managers assess performance and progress from various angles – women in households, service delivery facilities, and beneficiaries exiting service facilities. Currently married women in selected households were asked in detail regarding their family planning experiences right from their initiation to the current method in use. The surveys were conducted in 52 clusters across Punjab regularly for four years (2020 - 2023). This section presents results based on cross-sectional data exploring various aspects of contraceptive method used, discontinuation and switching of methods. These cross-sectional surveys basically focus on the same households over the four years but replaced for reasons of refusal, women respondent aged beyond 49, or migration (see details in Table).

Table 5: Longitudinal Panel Study in Punjab Using PMA Framework, household coverage during 2020-2023

Year of Survey	2020 Baseline	2021 Phase-II	2022 Phase-III	2023 Phase-IV
Number of households contacted	1,970	1,980	1,979	1,935
Number of households replaced (1a).	-	232	202	191
Number of currently married women interviewed	2,258	2,303	2,279	2,245
Number of women dropped for various reasons (1b).	-	482	425	188
Newly entered women due to replacement of household (1c).	-	242	212	193
Newly entered women (1d).	-	168	231	453

1 (a). The main reasons for the replacement of the households include: HH migrated, or refusal for interview, and no eligible women in the HH

1 (b). These women are dropped because the HH was replaced or the women interviewed: got divorced/widowed/separated, age beyond 49, uterus was removed, gone to parent's home for a longer period, household locked in consecutive visits, or HH reported season migration.

1 (c). These women were included due to replacement of the household

1 (d). These women newly interviewed who were not interviewed in the baseline

The PMA surveys in Punjab show a unique case of rising ever-use of contraception over four years. Unprecedented eleven-point increase in ever-use of contraception (from 51 to 63 percent) over four years reflects dynamic changes (keeping in mind that COVID had seriously constrained access to services in 2020 - 21). Current use of contraception (among currently married women) shows eights percent increase (from 38 percent to 46 percent) but use of modern methods, which has real impact on fertility, moved only three points in four years (from 29 percent to 32 percent) (Table 6).

The slow momentum may be attributed to initially to COVID restrictions followed by serious contraceptives supply shortage during 2022 and 2023. Percent women reporting discontinuation of any method increased from around 14 percent (in 2020) to 17 percent (in 2023). It is interesting to note that rapid increase in ever-use in a very short period is an encouraging sign showing larger percent of women trying to avoid unplanned pregnancies. Women trying to minimize risk of unplanned pregnancy in the light of restrained access followed by availability of supplies in later years. The rise in current use of contraception is by traditional methods (rather than modern methods) but a high percent of women stopped using the methods for various reasons. The intentions of reducing risk of pregnancy are recognized as the basis of using contraception but restricted access and restrained supplies for three years did not provide the needed contraceptive choice to women to minimize risk of pregnancy.

Table 6: Trend of contraceptive use and discontinuation rates – Longitudinal Panel Study 2020 - 2023

Contraceptive Use - Percent	Phase I 2020	Phase II 2021	Phase III 2022	Phase IV 2023
Ever use of FP method	51.4	50.1	60.6	62.9
Currently using any method	37.7	37.4	44.9	46.0
Use of modern methods	28.6	28.3	30.3	31.7
Discontinued use of any method	13.7	12.7	15.7	16.9

The surveys reveal that percent women who reported unintended pregnancies rose from around 10 percent in 2021 to almost 18 percent in 2023 (Table 7). This accelerated increase in unintended pregnancies reflect outcome due to the prevailing conditions of constrained availability of contraceptive commodities (related to import restrictions and restrained funds availability for procurement of contraceptives by public sector). Rise in fertility related reasons of discontinuity and rise in unintended pregnancies are consistent findings. Rising discontinuation of contraception (even of traditional methods) is a key reason for high unintended pregnancies and seeks a proactive response from all concerned to address the aggravating service availability situation. The PMA surveys reveal trend in contraceptive discontinuation is consistent with trend of high unmet need for contraception. The trend is quite alarming, and points towards the need to evolve multi-factor response at facilities, communities and individual levels to educate women with accurate information, enhance access and availability of supplies and improve service provision environment and preparedness to provide necessary protection to women against unplanned pregnancies.

Table 7: Trend of percent women reporting unintended pregnancies and unmet need for contraception – Longitudinal Panel Study 2020 - 2023

	Baseline 2020	Phase II 2021	Phase III 2022	Phase IV 2023
Unintended Pregnancy	- -	9.7	12.5	17.6
Unmet Need	- -	18.6	14.2	16.6

Not estimated for baseline survey (Phase-I)

PMA surveys gathered information regarding first method used along with the current method in use by currently married women. Table 8 presentation the two methods and the difference (change) noted in each survey. Across all surveys, tubal ligation is the key method that shows steady gains over four years (rising from 5 percent in 2020 to 7.2 percent in 2023). More and more women reported shifting and adopting tubal ligation as their current method. These are the women who have completed their desire family size and seek full protection against any unplanned pregnancy. All other methods show negative changes meaning women dropped or shifted to new method to minimize risk of pregnancy. Condom is the most prominent method that women started using but also a main method they discontinued using or moved to another method. The gap between first and current use for condoms widens over surveys reflecting increased dissatisfaction with its use and women prefer to switch or discontinue its use. Among the modern methods, injectables is the second prominent method adopted as first choice for use (between 5 and 6 percent over the years), but with little higher than 1 percent as current users – reflecting a high dropping out or switching from this hormonal method.

Furthermore, IUCD is the third most preferred method of choice but consistently Table 8 reveals more than half of all IUCD users either dropped out or switched to another method. Oral pills – another hormonal method, if taken together with injectables, then percent women stopping its use or switching to another method is quite high. High percent of women report adopting traditional methods as their initial selection but it appears women quickly learn about its less efficacy against risks of pregnancy, drop out or switch to another more effective method as their current method. All four surveys further indicate that women have frequently switched their first method, most likely to tubal ligation, with changes observed across all methods. This lack of consistency in method use is a compelling aspect that warrants further examination to understand where and why these switches are occurring.

Table 8: Percent women reporting first and current method in use and estimated change in each phase

Methods	Baseline - 2020			Phase II - 2021		
	First method	Current method	Change	First method	Current method	Change
Tubaligation	7.1	12.1	5.00	7.7	12.1	4.40
Condom	18.7	10.2	-8.50	17.8	10.3	-7.46
Injectables	5.0	1.2	-3.80	4.8	1.2	-3.55
IUD	4.8	2.6	-2.20	3.9	2.2	-1.70
Pill	3.5	1.4	-2.10	3.1	1.0	-2.10
Implants	0.4	0.3	-0.10	0.2	0.2	0.00
LAM	1.3	0.8	-0.50	1.8	1.1	-0.70
Traditional methods	10.6	9.1	-1.50	14.8	9.1	-5.70

Methods	Phase III - 2022			Phase IV - 2023		
	First method	Current method	Change	First method	Current method	Change
Tubaligation	8.0	14.4	6.40	7.6	14.8	7.20
Condom	19.1	10.0	-9.10	23.0	12.3	-10.70
Injectables	5.9	1.4	-4.50	5.4	1.3	-4.10
IUD	4.9	2.3	-2.60	5.0	2.3	-2.70
Pill	3.4	1.3	-2.10	3.2	0.8	-2.40
Implants	0.3	0.2	-0.10	0.2	0.0	-0.20
LAM	2.2	0.7	-1.50	0.5	0.1	-0.40
Traditional methods	18.6	14.6	-4.00	18.0	14.3	-3.70

Trend of Method Discontinuation and Method Switching – Cross sectional Results

A quick review of PMA surveys reveals that women who dropped out their first method and not currently using any method rose from 13 percent (in 2020) to nearly 17 percent (in 2023), while percent women who switched methods increased from 12 percent (2020) to 15 percent (2023)[5] (Table 9). Among the discontinuation of modern methods, condom appears to the most prominent,

[5] Taken together (percent discontinued and percent switched) the total rises from 25 percent of all women (phase-I) to 32 percent (in Phase-IV), reflecting a major segment who need attention.

followed by injectables and IUCDs[6] [vii,viii]. Withdrawal though adopted by a high percent as their first method but surveys reveal increasingly women discontinued this method over the years (from 13 percent in 2020 to 28 percent in 2023). Percent women switching from withdrawal also increased from just 11 percent to 18 percent in four years. Contraceptive discontinuation directly affects fertility rates as women take risk for unintended pregnancy. Studying contraceptive discontinuation and switching is crucial to understand the barriers women face and improving the quality of family planning services to overcome issues pertaining to unmet need. The results further reveal that condom users have the highest rates of both dropout and method switching across all Phases/surveys. This cross-sectional data trend shows that condom use is notably unstable, with many users discontinue or change their method over time. Tracking individual women could provide clearer insights into the reasons behind these patterns.

Table 9: Percent distribution of women who discontinued use or switched methods over four phases

Methods	Number of recent dropped out *Percent Dropped out*				Number of recent switched *Percent Switched*			
	Phase I	**Phase II**	**Phase III**	**Phase IV**	**Phase I**	**Phase II**	**Phase III**	**Phase IV**
IUDs	13.1	13.0	9.4	9.1	11.0	8.1	13.4	13.4
Injectables	16.2	17.0	12.6	14.1	16.6	13.9	18.5	15.6
Implants	0.5	0.2	0.5	0.8	0.3	0.0	0.7	0.3
Pills	8.9	8.9	7.6	7.3	12.1	13.8	9.3	9.7
Condoms	**44.5**	**36.0**	**39.6**	**38.1**	35.9	26.3	30.8	39.5
LAM	0.2	2.2	4.1	0.5	4.3	4.9	5.9	2.0
Rhythm method	1.1	5.4	2.2	0.8	7.4	14.5	5.1	1.4
Withdrawal	**12.7**	**16.3**	**23.1**	**27.7**	**10.8**	**18.5**	**15.6**	**17.9**
Other modern method	2.2	1.0	0.9	1.6	0.7	0.2	0.7	0.3
Other traditional method	0.7	0.0	0.0	0.0	0.9	0.2	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No of Cases	**303**	**302**	**341**	**383**	**267**	**215**	**367**	**352**
	13.4	13.2	15.0	16.7	11.8	9.4	16.1	15.4

Method switching is an interesting behaviour for in-depth review over the four surveys. Analysis of switching from First Method to Current Method is done for each year by regrouping those who switch to sterilization, or other modern methods or traditional methods. The regrouping is done based on small number of cases and also on broader method category (which stop births, spacing of births, and traditional methods). Key methods are discussed below for specificity of switching (Table 10).

[6] Overall discontinuation rate among IUCD users was 18.9% with average time of usage of 7 months before discontinuation (Ref: Azmat, S Khurram; et al: 2012); and
Compared with women who received free IUCD service (via voucher scheme), the method switching is 2 times higher among women who had paid for IUCD insertion (Reference Hameed, et al. 2015).

(i) Women who switched from condoms to sterilization are consistent over the years (rising from 14 to 18 percent). Higher percent of women switch to traditional methods (15-16 percent) reflecting lack of needed information regarding efficacy and risks associated with traditional methods. Why do a large percent of condom users adopt the method and then discontinue or switch to other methods are questions that need answers.
(ii) Women switching from injectables and IUCD to sterilization over the years show consistency, and same is reflect for traditional methods.
(iii) Women switching from traditional methods to sterilization and other modern methods steadily increase over the years reflecting improved knowledge and better choice of methods to minimize risk of unplanned pregnancy.

Table 10: Percent distribution of women who switched methods as reported in each phase

	Switching to which method			
From → to method	**Phase I**	**Phase II**	**Phase III**	**Phase IV**
Condom to				
Female Sterilization	14.3	9.5	11.8	18.5
Other Modern	7.4	9.2	4.3	5.1
Traditional	15.2	7.7	14.7	15.9
Injectables to				
Female Sterilization	6.7	3.0	8.0	7.4
Other Modern	7.0	5.8	4.7	5.1
Traditional	2.9	5.1	5.8	3.1
IUD to				
Female Sterilization	5.2	3.3	5.8	6.5
Other Modern	2.9	3.8	3.7	2.8
Traditional	2.9	1.1	3.9	4.0
Pill to				
Female Sterilization	4.9	4.5	2.4	3.4
Other Modern	4.7	6.8	3.7	3.1
Traditional	2.4	2.7	3.2	3.1
Implants to				
Female Sterilization	0.3	0.0	0.8	0.3
LAM to				
Female Sterilization	1.0	1.6	1.0	0.6
Other Modern	2.6	1.0	2.6	0.3
Traditional	0.8	2.3	2.4	1.1
Rhythm method to				
Female Sterilization	4.2	7.5	3.0	1.1
Other Modern	2.0	4.7	0.7	0.0
Traditional	1.2	1.3	1.4	0.3
Withdrawal to				
Female Sterilization	5.7	4.7	7.5	10.2
Other Modern	4.3	11.3	7.5	7.1
Traditional	0.8	0.9	0.6	0.6

As a summary, it is noted that a third of all women switched from other modern methods to tubal ligation over the years and gradually increasing (from 32 percent to 36 percent) (Table 11). These women have achieved their desired family size and opted to stop all future births. Furthermore, percent women switching to other modern methods declined from almost 25 percent to 16 percent. These women continue to use modern methods to minimize risk of any unplanned pregnancies. We also note that percent women switching to traditional methods increased over the years (in a fluctuating manner). This is a group of women who may be referred as risk takers switch from modern methods to traditional methods with less method efficacy for protection against future unintended pregnancy adversely affecting maternal and child health.

On the other hand, women switching from traditional methods to modern methods reflect a fluctuating trend but overall maintain a steady trend. This is relatively a smaller group of women, among whom majority switched to sterilization and some switched to other modern methods to space pregnancies.

Table 11: Summary of cross-sectional data-based trend in method switching

	Switching to method			
From Modern Methods to	**Phase I**	**Phase II**	**Phase III**	**Phase IV**
Female Sterilization	32.1	21.9	29.0	36.4
Other Modern	24.6	26.6	19.0	16.4
Traditional	24.2	18.9	30.0	27.2
From Traditional Methods to				
Female Sterilization	9.9	12.1	10.5	11.4
Other Modern	6.3	16.0	8.2	7.1
Traditional	2.0	2.2	2.0	0.9

Reasons for Discontinuation of Contraceptive Methods – Cross Sectional Analysis

Women discontinuing their contraceptive use were asked to give reasons for doing so. All through the four cross-sectional survey results more than a third of women reported ‘wanted to become pregnant’ as the key reason stated for discontinuing the contraceptive method (Table 12). This reason is reported persistently over the four years. Fear of side-effects and infrequent sex/ husband away are two second important reasons reported by women. Husband away or infrequent sex increased from 10 percent to almost 17 percent, while fear of side effects declined from 16 percent to 7 percent of the same period. The fear could be based on myths and misinformation prevalent in the community and weak counseling services to address the same. Method failure (woman became pregnant while using a method) increased from just 6 percent to 11 percent in four years – implying poor method specific knowledge among women or used the method with less care needed to gain its full efficacy. Method related health concerns is also reported by 7 percent women which remains steady over the years. Discontinuation of IUCD due to experience of side effects is noted to be high in Pakistan and majority of women do not switch to another method[ix] after that but still want to avoid pregnancy. Analysis of project data revealed that 19% of the women discontinued use of their IUD at 10 months and, of these women, the majority (69%) cited side effects as the main reason for discontinuation (Azmat et. al. 2013). In summary, method specific reasons show a fluctuating trend falling from 42 percent (in Phase-I) to 33 percent (in Phase-IV). Wanted to become pregnant is the main reason that shows an increase for fertility related reasons while fear of side effects and method failure reflect fluctuation but increased in a big leap.

Table 12: Trend of percent distribution of reasons for discontinuing contraceptive methods

Reasons of Discontinuation	Percent Distribution of Discontinuation Reasons			
	Phase I	**Phase II**	**Phase III**	**Phase IV**
Wanted to become pregnant	35.1	41.1	32.6	36.3
Infrequent sex / husband away	9.6	11.2	15.6	16.5
Difficult to get pregnant / Menopausal	3.8	4.9	5.8	6.5
Became pregnant while using	6.4	7.0	11.9	10.7
Fear of side effects	16.0	8.2	11.0	7.3
Health concerns	7.3	10.1	10.3	7.3
Experienced side effects	5.8	4.7	3.4	3.1
Husband disapproved	2.9	0.2	1.2	2.4
Wanted more effective method	0.8	1.7	0.6	0.3
No method available	0.8	0.7	0.2	0.8
Costs too much	0.3	0.2	0.6	0.3
Inconvenient to use	1.1	2.4	0.8	0.8
Fatalistic	5.1	3.2	1.1	1.6
Others	3.2	4.1	4.8	6.3
Don't know	1.7	0.3	- -	- -
Total	100.0	100.0	100.0	100.0
No of Cases	**303**	**302**	**341**	**383**

Results of cross-sectional surveys further reveal that trend of fertility related factors played greater role than the method related reasons for contraceptive discontinuity. Rise of percent women who discontinued contraceptives due to fertility related reasons from 49 percent to 59 percent (over four years) possibly be due to justification of unintended pregnancies experienced by women– see Table 13. On the contrary, percent women who discontinued contraceptive use due to method related reasons declined from 42 percent to 33 percent over four years.

Table 13: Summary of method or fertility related reasons for contraceptive discontinuation

Percent women who discontinued Contraception	Phase I 2020	Phase II 2021	Phase III 2022	Phase IV 2023
Due to method related reasons	41.5	35.2	40.1	32.8
Due to fertility related reasons	48.5	57.2	54.0	59.0

Understanding the meaning of 'fears side effects' and their social consequences and the nature of rumor and misconceptions among the various populations being served by a family planning program is critical for ensuring e.g. potential reasons for women to discontinue a particular method can be considered during counseling and appropriate strategies for coping or switching followed. Addressing the determinants should enable programs to identify potential or actual discontinuers and guidance to immediately switch to an equally or more effective method, as well as sustain continued support to those who are currently using to facilitate their continued use until they desire to become pregnant or no longer need protection.

Summary of Results Based on Cross Sectional Data

The study of the dynamics of contraceptive use has revealed various areas of interest and problems in the use of contraceptives faced by women and the gaps in the provision of services in Punjab. Reviewing contraceptive discontinuation and switching is crucial to help Program Managers understand the barriers women face and improving the quality of family planning services.

This review has dwelled with demand-side factors which are the user-related elements that influence women's decisions to start, continue, switch, or stop using contraceptives. The most important factor identified in this review is the reproductive intentions implying women may change her desire for children (e.g., wanting more children) that would lead to discontinuation of a temporary method. In this regard, intra-family dynamics and women's autonomy in decision-making play a critical role in contraceptive use patterns. Members of extended family in Punjab influence woman's decision regarding family size play important role. Benefits of birth spacing to maternal and child health need to be fully integrated in the counselling sessions to ensure women made informed decisions when it comes to timing of getting pregnant. Furthermore, our review of all Phases PMA identifies contraceptive side effects (fear of or experience with side effects), real or perceived, as a key reason for discontinuation. This is further, aggravated by misconceptions or concerns among women users about long-term health effects of contraceptives lead to discontinuation. Women experiencing contraceptive failure or have method-related problems with its use discontinue, basically lack necessary awareness and information regarding effective contraception to prevent an unintended pregnancy. These concerns reflect information gaps linked to provision of accurate information by service providers. Poor knowledge among women about available methods or its correct use does lead to method failure and discontinuation. The analysis of data also reveals that women did not point out supply side issues (stock-out, or lack of contraceptive availability) as a key issue while reporting their reasons for discontinuation.

One key finding of this review is the dynamics of method mix as reflected by women through her adoption, discontinuation and switching of methods over time. Results reveal that five modern methods (condoms, tubal ligation, injectables, pills and IUCDs) remain initial methods of adoption in all Phases. Two modern methods (condoms, and tubal ligation) are narrowed down as the main methods in current use. Changes in percent use of other modern methods is important to note and an area of interest to promote long-acting methods to enable women ensure proper birth spacing and meeting her desire family size. Knowledge passed to women during counseling, percent women who do receive needed counseling, request for follow-up visits, influence of misinformation and myths, etc. are areas that narrow the choice to two methods and calls for urgent programmatic intervention.

Another important issue that emerges from this analysis is that demand of children (family size) reflected in ideal family size and also in terms of 'wanted fertility' need to be focused for desired change in the minds of women so that align it with their family resources.

The desirable situation from contraceptive dynamics perspective is method switching rather than contraceptive discontinuation, which places women at higher risk of unplanned / unintended pregnancy. Switching methods basically implies continuity of use that enables women fulfill their pregnancy spacing needs and fulfill their fertility desires. Working for contraceptive continuity by switching directly impacts the reduction of unintended pregnancies, contributing to lower fertility rates and improved maternal and child health outcomes.

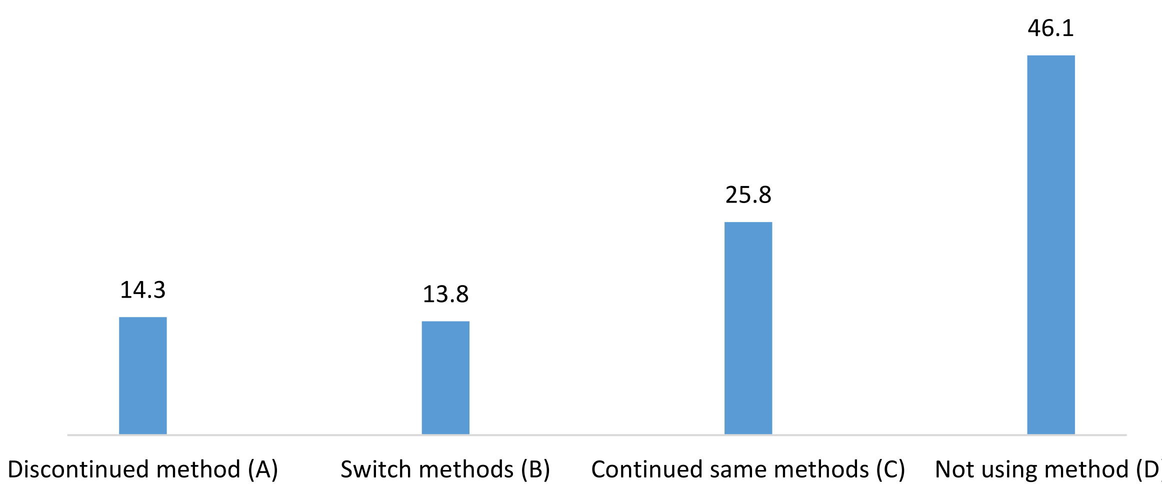
Following the good practices established by certain countries (like Egypt and Indonesia) to overcome issues emerging from side effects leading to contraceptive discontinuation, local measures both at policy and programme level are needed in Punjab in terms of addressing demand-side issues through effective counseling and improving communications to build awareness and education among women to make informed choice and decision. All stakeholders in Punjab need to take three important measures to establish an effective system:

- First, establish rapid field monitoring system to gather process related information to learn about reasons of discontinuation and associated factors.
- Second, analyze the information gathered under field monitoring to evolve remedial action plan to overcome issues of discontinuation using demand-side and supply-side features.
- Third, four key stakeholders are providing services to women in Punjab (PWD, DoH facilities, NGOs and private sector). Monitoring and uniform remedial measures need to spread across all stakeholders for effectively overcoming the issues of discontinuing.

7. LONGITUDINAL PANEL STUDY RESULTS – TREND OF CONTRACEPTIVE BEHAVIOUR

The total number of women recorded in the panel database include 1,411 who were interviewed in all four surveys. Women were asked in each survey regarding their first method use and their current use of contraceptive. Using these two responses, four status of contraceptive use are defined: Non-users, women who discontinued use, women who switched methods, and those who continued using the same method. Women reflected in the panel surveys during Phase-I through 4 basically fall in four distinct segments: (i) Women who discontinued use of contraceptives (based on method of first use and not using any method in Phase-I reporting); (ii) women who switched methods (based on first method used and using different method in Phase-I reporting); (iii) women who continued same methods (based on first method used and using same method in Phase-I reporting), and finally women were not using any contraception in Phase-I. Based on these distinctions, women were then tracked over Phase II, Phase III and Phase IV surveys for their contraceptive use status. The number and percent of women who: (A) discontinued use of contraceptive in Phase-I are 202 (14.3 % of total); (B) women who switched methods are 195 (13.8 % of total); (C) women who continued use the same method are 365 (25.8 % of total); and (D) those who reported not using any contraception were 650 (46.1 % of all women) are reflected in Figure 1. Each segment of women is then tracked for their status in the subsequent surveys to assess how women behave over the four years.

Figure 1: Percent distribution of status of women by their contraceptive use in phase I (2020)



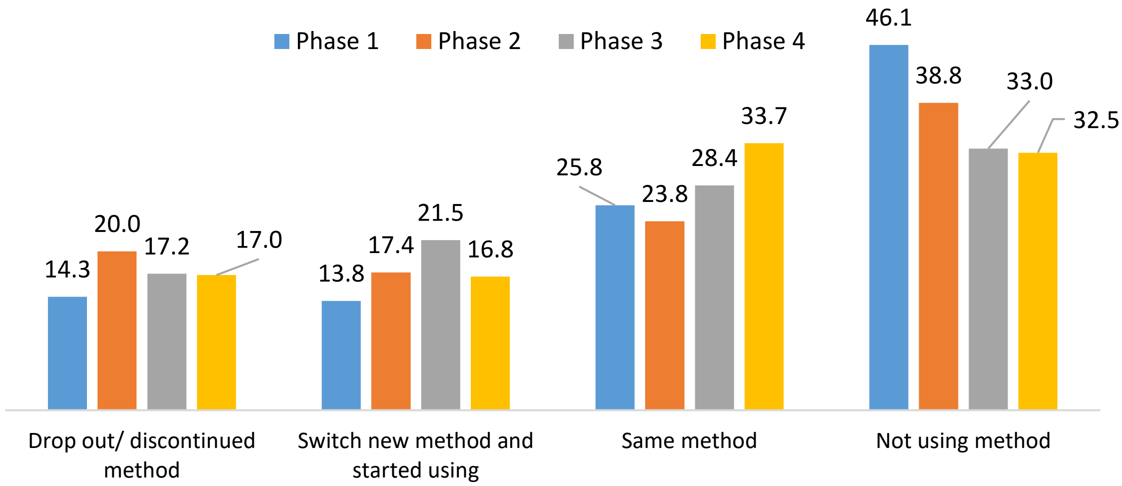
Analysis of contraceptive behaviour transition is interested to track what women in various segments adopt to space or limit pregnancy as reported in each survey based on their experiences. Tracking panel of women over Phases is based on their contraceptive use status identified in Phase I. Each status is tracked in subsequent Phases to explore the dynamics of contraceptive use in each Phase. Detailed trend of distribution and changes in contraceptive use status is displayed in Table 14**.** The table shows percent distribution of women between all four statuses (dropped out, switched methods, continued same method, and not using) in each Phase of the survey. Analyses of each segment is done separately to reflect percent of women who discontinue use, switch or continue use the method they first adopted in Phase-I. Women in each segment reflect a dynamic transformation over the subsequent Phases as some switch methods, some continue, some drop out and others never used. Panel data analysis reveal that almost half of all women (46 percent 1,411) in Phase I never used a contraception. This percent declines to 39 in Phase II and further to 32 percent by Phase IV, implying more women ever using contraception by the end of Panel survey in Phase IV (Figure 2).

Table 14: Trend distribution and changes in status of contraceptive use among panel women over phases II to IV

Phase I		**Phase II**		**Phase III**		**Phase IV**	
Discontinued method - A	14.3 →	A	65.6	A	51.5	A	52.7
		B	18.7	B	25.6	B	20.1
		C	15.7	C	23.0	C	27.1
		Total	**100.0**	**Total**	**100.0**	**Total**	**100.0**
No of Cases	**202**						
Switch methods - B	13.8 →	A	20.2	A	22.1	A	22.2
		B	19.6	B	16.5	B	13.4
		C	60.2	C	61.4	C	64.4
		Total	**100.0**	**Total**	**100.0**	**Total**	**100.0**
No of Cases	**195**						
Continued same methods - C	25.8 →	A	30.4	A	26.3	A	24.9
		B	18.2	B	22.6	B	19.4
		C	51.4	C	51.1	C	55.7
		Total	**100.0**	**Total**	**100.0**	**Total**	**100.0**
No of Cases	**365**						
Not using method - D	46.1 →	D	84.1	D	71.6	D	70.5
		Start using a method	15.9	Start using a method	18.7	Start using a method	11.5
		Total	**100.0**	B	2.3	B	3.9
No of Cases	**650**			C	7.4	C	14.1
				Total	**100.0**	**Total**	**100.0**

Close review and summation of four categories of women in each Phase reveals the women's changing contraceptive behaviours between these statuses that is either an outcome of circumstances or their actions to meet their contraceptive needs. These changing statuses are reflected in Figure 2 based on summation of percent women who either remain in the same status or shift to other status according to the reproductive health needs or circumstances. For instance, summing all women in Phase II falling under status A, B or those falling in status C gives the percent women who opted for discontinuation, or switched methods or continued the same method relative to the status is Phase I. Similar exercise is carried out for the remaining Phases to evolve a trend of each status presented in Figure 2.

Figure 2: Percent distribution of status of women by their contraceptive use across all phases



Trend analysis based on consecutive Phases reveals that there are changes in each of the four contraceptive use status over the four Phases. Percent women who discontinued use rose from 14.3 percent to 20 percent in Phase II and reached 17 percent in Phase IV. Trend of percent women who switched to a new method or started using a method rose from 13.8 percent in Phase I to 17 percent in Phase-II and further to 21.5 percent and finally to 17 percent in Phase IV. The segment also included new users or first-time users who were previously not using any method. Women who switch methods reflect persistence in behaviour to continue use in face of problems with previous method they used. The most interesting trend is among segment of women who reported to continue use the same method they were using previously, which fell from 25.8 percent (in Phase I) to 24 percent in Phase II and then persistently increased over Phase III and IV to reach 33.7 percent (in Phase IV). The trend analysis is Phase to Phase comparison of women contraceptive use status to capture how women change relative to previous Phase. In summary, analysis reveals percent women not using contraception falls from 46 percent in Phase I to 32.5 percent in Phase IV. This persistent decline emerges basically due to improvements noticed in two segments of women over four Phases: those who switched methods and those who used the same method.

Interpretation of Dynamics and Transformations:

1. Discontinuation (A): The increase in discontinuation rates in Phase II suggests issues with method availability (due to COVID), possible side effects, or access during this Phase. The decline in Phases III and IV indicates possible improvements in availability, method options, or user support.

2. Switching to a New Method (B): The overall rise in switching rates suggests that fewer users are changing methods over time. This could indicate: (i) Better method matching in earlier Phases; and (ii) better availability of alternative methods in later Phases.

3. Continuation (C): The steady increase in continuation rates from Phase I to Phase IV reflects improved user satisfaction, better counseling, or improved availability. Rise in unintended pregnancies due to non-availability of contraceptive in Phase I and Phase II added to women's desire to address their health issue.

4. Non-Use (D): The significant decline in non-use from Phase I to Phase IV suggests efforts made by the program, increasing awareness, or improving access to contraceptives. The persistent decline in Phase IV could indicate improvement in supply chain issues, better outreach, or changing user preferences.

The overall trend reveals improvement in contraceptive use over four Phases. By Phase IV, the trend stabilizes, with slight declines in continuation rates and increases in non-use, suggesting a need for renewed efforts to sustain progress. Finally, the spike in discontinuation rates in Phase-II highlights a critical period where availability was a serious issue and interventions (e.g., counseling, side effect management) were needed to retain users.

Transformation of Contraceptive Methods - Discontinuation or Switching over Phases

The longitudinal panel data provides a nuanced understanding of contraceptive behavior, highlighting the dynamics of discontinuation and switching among women over four years. For each Phase of the survey, information was gathered for their state of use and also which method they used when they stopped and their current use method for those who switched methods. This is not a regular dataset but rather a carefully constructed longitudinal panel dataset that compares contraceptive use status across consecutive Phases: Phase I to Phase II, Phase II to Phase III, and Phase III to Phase IV. By tracking same women over time, the dataset offers unique insights into their contraceptive behaviors and transitions. This information is critical for designing responsive family planning programs.

Insights on Contraceptive Methods' Discontinuation

The findings indicate significant challenges with short-term methods[7], which are the most frequently discontinued (Table 15):

- **Phase I**: Over two-thirds (68.8%) of women who discontinued were using short-term methods, while a modest 16.2% discontinued long-acting reversible contraceptives (LARCs). Traditional methods accounted for 15% of discontinuations.
- **Phase III**: A notable shift was observed, with nearly half (46.9%) of the discontinued users reporting prior use of traditional methods. LARC discontinuation rose to 28.5%, suggesting potential dissatisfaction or challenges in managing side effects.
- **Phase III**: Discontinuation trends show a stark change, with 72.1% of women reporting no method use following discontinuation, highlighting a critical gap in counseling and follow-up services.
- **Phase IV**: The high rate of non-use persisted (69.2%), with minimal variation in short-term or traditional method discontinuation (14.1% and 14.4%, respectively).

The dynamics of discontinuation shows use of methods for a very short period as noted in this analysis. Women discontinue a method but remain eager to protect themselves from unplanned

[7] Short Term methods include Oral Pills, Injectables, Condoms and EC Pills. While LARC include IUCDs and Implants. But implants have been short in supplies for the last several years across Punjab.

pregnancy keep options open and try various methods over time. The analysis clearly shows women who report discontinuation of methods, will continue use alternate methods provided they get necessary information and guided at each stage for informed decision.

Table 15: Trend of percent distribution of method used when women discontinued use

Drop out/ discontinued method	**Phase I**	**Phase II**	**Phase III**	**Phase IV**
	Current Method (Not using)			
Previous Method	**Percent**	**Percent**	**Percent**	**Percent**
Female Sterilization	0.0	0.0	0.0	0.0
LARC	16.2	28.5	3.3	2.3
Short Term	68.8	21.0	12.8	14.1
Traditional Methods	15.0	46.9	11.7	14.4
Not using	0.0	3.6	72.1	69.2
Total	**100.0**	**100.0**	**100.0**	**100.0**

Key Observations and Programmatic Implications

1. **Short-Term Methods Dominate Discontinuation**: Short-term methods, while popular, are discontinued frequently, indicating the need for better support mechanisms such as side-effect management, follow-up counseling, and informed decision-making.
2. **LARC Discontinuation Trends**: The rise in LARC discontinuation by Phase II could stem from inadequate counseling at initiation or insufficient follow-up. Strengthening pre-use education and post-insertion support can help mitigate this issue.
3. **Transition to Non-Use**: The alarming transition to non-use in Phases III and IV underscores missed opportunities for re-engagement. This trend calls for innovative outreach strategies, especially targeting women who have discontinued methods to prevent unplanned pregnancies.
4. **Traditional Methods as Alternatives**: The increased reliance on traditional methods among discontinuers reflects potential gaps in access to modern methods or lack of necessary information to guide continuous use. Addressing supply chain issues and ensuring availability of a broader range of options is crucial.
5. **The Role of Counseling**: Across all Phases, discontinuation patterns highlight the critical role of personalized, high-quality counseling to address concerns about side effects, method switching, and prevention against unplanned pregnancy.

Endorsements for Family Planning Program Managers

1. Enhance Counseling Services: Train providers to deliver comprehensive information on managing side effects, transitioning between methods, and choosing methods aligned with women’s needs and preferences.

2. Expand Access to LARCs: Strengthen the availability and acceptability of LARCs through awareness campaigns and affordable pricing strategies.

3. Strengthen Follow-Up Mechanisms: Implement systematic follow-up protocols for users at risk of discontinuation, leveraging community-based health workers for home visits and tele-health options.

4. Target Non-Users Post-Discontinuation: Design targeted interventions to re-engage women transitioning to non-use, offering tailored contraceptive options to suit their life stages and preferences.

5. Improve Supply Chain for Short-Term Methods: Address the supply chain and distribution challenges that contribute to high discontinuation rates, ensuring consistent availability and affordability.

This analysis highlights actionable pathways to address the high discontinuation rates and ensure sustained contraceptive use, aligning with the broader goals of family planning programs in Punjab.

Insights on Contraceptive Methods' Switching

The percentage distribution of women who switched or restarted contraceptive methods in all Phases, categorized by their **previous method** and the **current method** they adopted presented in Table 16. In-depth analysis of key findings, and key takeaways based on the data:

Key Findings Based on Phase I users' Distribution

1. **Switching from Long-Acting Reversible Contraceptives (LARC)**: **44.1%** of women who switched from LARC adopted **female sterilization**, while **28.1%** shifted to short-term methods, and **27.7%** opted for traditional methods. This indicates that women using LARC are transitioning to both permanent and less reliable methods.
2. **Short-Term Methods**: A significant proportion (**34.5%**) of short-term method users switched to female sterilization, while **31.2%** shifted to traditional methods. Interestingly, **23.7%** moved within the same short-term category but to a different method. This points to dissatisfaction with short-term methods but also highlights a preference toward permanent solutions.
3. **Traditional Methods**: Among traditional method users, the majority (**58.5%**) switched to female sterilization, while **31.4%** moved to short-term modern methods. A very small fraction (**6.7%**) adopted LARC. This shift suggests that users of traditional methods may be open to transitioning to modern methods with adequate support and counseling.

Table 16: Trend of percent distribution of women reporting method switching over four phases

	Previous Method	Phase 1 – Current Method: Female Sterilization	LARC	Short Term	Traditional Methods	Total	Number	Phase 2 – Current Method: Female Sterilization	LARC	Short Term	Traditional Methods	Total	Number
switch method/ started again	Female Sterilization	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0
	LARC	44.1	0.0	28.1	27.7	100.0	20	0.0	0.0	61.3	38.7	100.0	13
	Short Term	34.5	10.6	23.7	31.2	100.0	135	12.4	10.8	25.9	50.9	100.0	57
	Traditional Methods	58.5	6.7	31.4	3.4	100.0	39	18.6	6.2	66.0	9.2	100.0	35
	Not using	0.0	0.0	0.0	0.0	0.0	0	26.3	8.1	32.6	33.0	100.0	38
	Total	**40.3**	**8.8**	**25.7**	**25.2**	**100.0**	**195**	**16.6**	**8.0**	**40.8**	**34.7**	**100.0**	**142**

	Previous Method	Phase 3 – Current Method: Female Sterilization	LARC	Short Term	Traditional Methods	Total	Number	Phase 4 – Current Method: Female Sterilization	LARC	Short Term	Traditional Methods	Total	Number
switch method/ started again	Female Sterilization	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0
	LARC	0.0	0.0	0.0	100.0	100.0	1	23.7	0.0	66.9	9.3	100.0	6
	Short Term	9.5	6.8	15.3	68.4	100.0	39	17.4	10.0	23.3	49.4	100.0	25
	Traditional Methods	5.3	12.8	56.2	25.7	100.0	19	0.0	9.7	50.9	39.5	100.0	30
	Not using	8.4	2.2	41.0	48.5	100.0	108	8.9	6.4	48.1	36.6	100.0	76
	Total	**8.3**	**4.5**	**36.7**	**50.6**	**100.0**	**166**	**9.2**	**7.5**	**45.1**	**38.3**	**100.0**	**137**

Key Findings Based on Phase II users' Distribution

1. **LARC Switching Trends**: A very small number of LARC users are reflected in the dataset wherein a significant percentage (61.3%) of women who switched from LARC moved away to short-term methods, with 38.7% adopting traditional methods. This indicates a move away from long-term, provider-dependent methods.
2. **Short-Term Methods**: 50.9% of women who used short-term methods in the past shifted to traditional methods, reflecting dissatisfaction or accessibility challenges. Another 25.9% continued using short-term methods, while only 12.4% transitioned to female sterilization.
3. **Traditional Methods**: Women leaving traditional methods mostly shifted to short-term methods (66%), possibly driven by unmet needs for modern contraceptive options. Around 19 percent shifted to permanent method – long term protection. A smaller proportion moved to LARC (6.2%) or remained with traditional methods (9.2%).
4. **Non-Users**: A quarter (26.3%) of non-users adopted female sterilization, while a third each (32.6% and 33%) moved to short-term methods or shifted to traditional methods. This shift suggests partial success in reaching non-users, but the preference for less effective traditional methods raises concerns.

Phase III Key Findings and Insights

Two-thirds of all women who were non-users in previous phase reported to be switching to some method in phase III.

1. **Dominance of Traditional Methods**: Among users transitioning from **short-term methods**, 68% switched to **traditional methods**, highlighting a significant reliance on these methods. While 49% of women who were **not using any method** reported to use with **traditional methods** as their primary choice.
2. **Decline in LARC Usage**: The use of **long-acting reversible contraceptives (LARC)** as a current method dropped sharply to 4.5% in Phase III, compared to 8.0% in Phase II and

8.8% in Phase I. This indicates serious barriers existing in the availability and access of LARCs.

3. **Sustained Use of Short-Term Methods**: Among women previously using **short-term methods**, 15.3% stayed within the same category, indicating a moderate level of satisfaction or access to short-term contraceptives.
4. **Limited Use of Permanent Methods**: **Female sterilization** remains negligible across all transitions, indicating cultural, structural, or accessibility barriers to permanent contraceptive methods.

Key Findings Based on Phase IV Users' Distribution

1. **Increase in LARC Switching**: LARC users **displayed a very small number of cases in Phase 4 with a notable shift, with 23.7% transitioning to** female sterilization **and 66.9% switching to** short-term methods.
2. **Short-Term to Traditional Methods**: Among those transitioning from **short-term methods**, 49.4% moved to **traditional methods**, showing consistency with prior Phases where traditional methods gained prominence among switchers indicating low reliance on short term methods.
3. **Traditional Methods as a Destination**: Users of **traditional methods** showed a relatively balanced pattern: 51% switched to **short-term methods**, while 39.5% stayed within the traditional broader category, signaling both retention and moderate dissatisfaction.
4. **Reactivation among Non-Users**: Among previous **non-users**, 48% adopted **short-term methods**, while 37% switched to **traditional methods**. This indicates an ongoing preference for methods that are less permanent or require lower commitment.
5. **Sustained Neglect of Female Sterilization**: Across the Phases, sterilization as a method remains significantly underutilized, except for a slight uptake (23.7%) among former LARC users in Phase IV.

Comparative Analysis of four Phases

1. **Trends in Preferences**:

   First, short-Term Methods consistently emerged as a prominent choice across all Phases, reflecting women's demand for flexible, reversible options. Second, reliance on **Traditional Methods** remained high, especially among those without prior method use. Lastly, uptake of **LARC** was consistently low, highlighting barriers in awareness, counseling, or access.

2. **Switching Patterns**:

   First, Women using **Traditional Methods** frequently transitioned to Short-Term Methods but often reverted to the same category later, indicating mixed satisfaction. Furthermore, movement from "Not using" revealed evolving preferences but underscored challenges in sustained contraceptive adoption.

3. **Phase-Specific Highlights**:

Phase I saw the highest reliance on sterilization, while Phases II and IV reflected growing Short-Term Method adoption, while Phase III marked a resurgence of Traditional Methods.

Recommendations for Programmatic Improvements

1. **Enhance LARC Awareness and Access**:

   Conduct targeted counseling on the benefits of LARC for women seeking reversible, long-term solutions. Improve provider training to reduce biases and increase LARC offerings in underserved areas. Ensure availability and affordability of IUDs and implants, given their higher continuation rates.

2. **Address Cultural Barriers and Strengthen Education**:

   Promote educational and awareness campaigns addressing misconceptions around modern contraceptives, especially in rural areas. Collaborate with community leaders to build trust in modern methods.

3. **Focus on Sustained Use**:

   Develop follow-up mechanisms for users to ensure consistent use and avoid discontinuation or reversion to less effective methods. Introduce mobile units and community-based workers to provide ongoing support and refills for Short-Term Methods.

4. **Diversify Contraceptive Options**:

   Ensure availability of a wide range of methods to cater to diverse user preferences and needs. Strengthen supply chains to minimize stockouts of modern methods.

5. **Tailored Interventions for Traditional Method Users**:

   Provide targeted counseling sessions to users of traditional methods, showcasing the benefits and effectiveness of modern methods. Address specific fears or misconceptions preventing transitions to modern options.

6. **Monitor and Evaluate**:

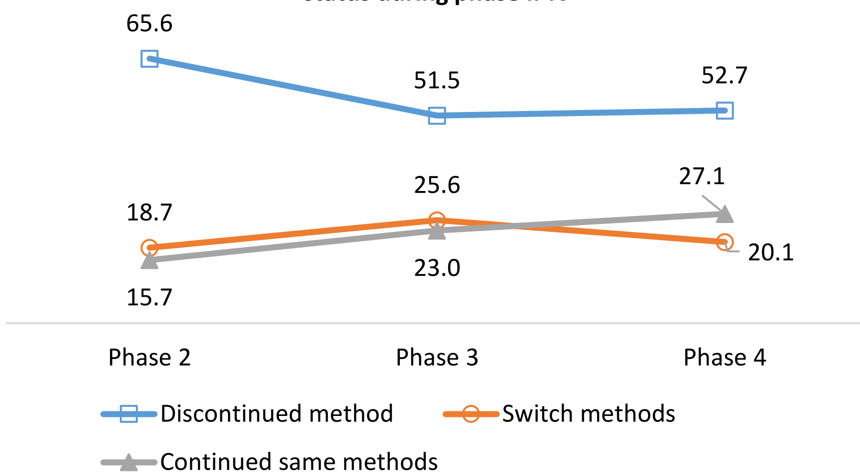
   Regularly analyze contraceptive switching patterns to identify emerging trends and gaps. Use data-driven approaches to refine family planning strategies.

By addressing these key areas, Punjab’s family planning programs can better cater to women's evolving preferences, improve method continuation, and bridge gaps in access and awareness.

Trend of Discontinuation of Contraceptive Methods

Panel database shows women who discontinued in Phase I exhibit a changing contraceptive use status over the following years. Women who discontinued use of contraception during Phase-I, two-thirds of them continued to be so (discontinued) in Phase-II (Figure 3 based on Table 14) while a third of remaining women who had discontinued, either restarted a new method (19%) or the same old method (16%). The Panel of these women who discontinued in Phase-I reflect a change in their behaviour in Phase-III as only 52 percent continued to discontinue while 26 percent reflect restart or switched to a new method. The status continues in Phase-IV survey with slight changes in all three categories of users (Figure 3 based on Table 14). The shift of women who discontinued (in Phase I) towards a new method or an old method is substantial in Phase IV reflecting conscious decision to space or limit births by using a contraceptive method. The idea being searching a method that will suit their reproductive health needs.

Figure 3: Tracking discontinued users of phase I for change in use status during phase II-IV



Relationship of Factors Influencing Discontinuation of Contraception

This section explores the pattern of factors that either facilitates or restrains discontinuation of contraceptive methods. The analysis is based on percentage of women who discontinued in each category of selected indicator. The analysis takes account of three sets of indicators reflected in the framework and include: background indicators, interaction with healthcare staff, immediate factors related to information received by women in counseling by healthcare staff. Key results of this analysis are presented below (Table 17):

- Age wise, women less than age 30 across all Phases of survey reflect high discontinuation of methods.
- Low parity women (1-2 children) are much likely than women with three or more children to discontinue across all years of survey. Discontinuation of method is high among low parity women with 2 or less children.
- Women experiencing unintended pregnancy reflect less likelihood to discontinue than those women who didn't report unintended pregnancy during previous five years. This is prominent in Phase-II results implying that seeking better options for contraceptive may have helped in lowering discontinuation.
- Another important factor that reflects high discontinuation is the 'Desire for Future Birth'. This holds true across all Phases for women who say they have a desire for future birth.

- One key factor is the desire for more births in the future led to discontinue use in all surveys. Similarly, women who were unsure about future births also reflect higher likelihood to discontinue contraception.
- Women who received counseling from healthcare provider about side effects of methods are less likely to discontinue relative to those who didn't receive such counseling.
- Furthermore, women who were briefed as how to deal with side effects and those who were informed about other methods, are less likely to discontinue use of methods relative to those women who didn't receive such a briefing.

Table 17: Percentage of women who discontinued use of contraception by background and intermediate factors (over four years)

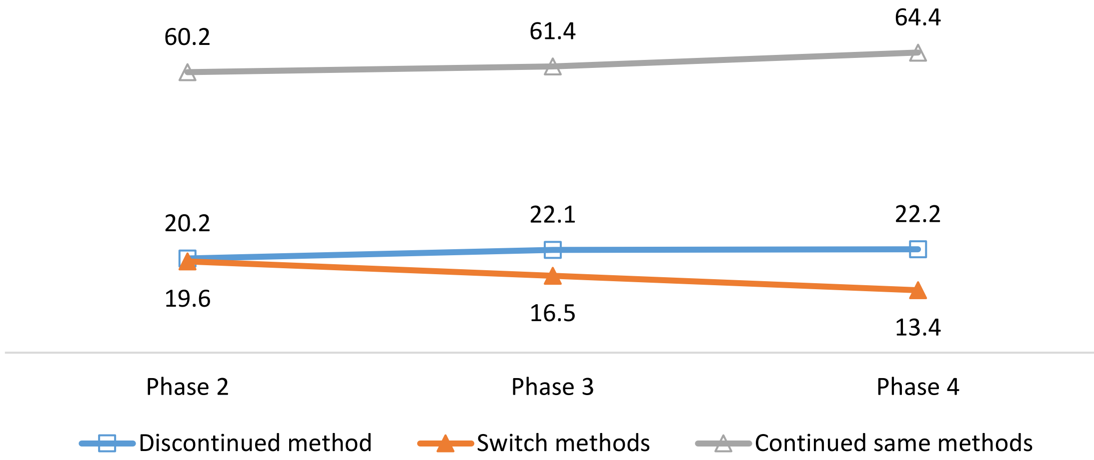
Variables	Phase 1 %	Phase 2 %	Phase 3 %	Phase 4 %
Background variables				
Age of Women				
<= 30	34.4	49.9	42.2	45.1
30 - 34	26.9	32.4	33.5	28.2
35- 39	18.8	30.0	24.0	22.9
40 - 44	23.3	31.9	28.0	26.5
45 Plus	20.0	42.9	32.6	42.4
Area of Residence				
Urban	28.2	33.6	28.0	28.4
Rural	25.4	39.5	34.5	33.7
Education of Women				
None	26.5	33.0	28.8	34.0
Primary	22.5	41.4	31.1	28.3
Middle	28.1	40.7	29.5	29.5
Secondary	32.6	45.5	41.8	33.1
Higher	24.8	30.5	33.0	31.5
Wealth Index				
Lowest	22.5	41.3	27.6	32.3
Second	25.9	35.6	31.7	33.0
Middle	28.4	34.3	30.4	33.9
Fourth	27.6	36.7	39.7	28.3
Highest	27.7	38.2	30.2	30.7
Parity				
1-2	39.9	66.2	54.8	54.1
3-4	23.9	33.8	29.7	28.5
5 and above	21.2	24.0	24.3	27.3
Interaction with Health Staff				
In last 12 months LHW visited to talk about FP				
No	27.7	34.9	31.3	32.5
Yes	24.6	40.0	33.1	29.9

Variables	Phase 1 %	Phase 2 %	Phase 3 %	Phase 4 %
In last 12 months respondent visited health facility				
No	25.9	37.3	32.6	31.5
Yes	27.2	36.5	27.6	31.9
Any staff member at health facility speak about FP				
No	25.6	37.3	32.6	31.5
Yes	33.7	36.5	27.6	31.9
Unintended Pregnancy				
No	28.4	40.3	33.0	33.1
Yes	22.9	27.1	27.7	27.3
Desire for Future Birth				
Yes	46.3	64.1	59.2	61.9
No	27.8	36.4	33.7	34.1
Cannot get pregnant/ sterilized	4.3	10.2	10.0	13.3
Undecided	34.2	58.8	39.7	37.1
Immediate Factors				
Told about side effects of current method to avoid pregnancy				
No	26.9	45.5	37.9	35.4
Yes	25.9	18.1	14.3	20.4
Told how to deal with side effects				
No	27.6	45.6	37.9	34.4
Yes	24.3	17.1	14.7	22.4
Told about other FP methods				
No	25.0	42.9	35.7	34.7
Yes	30.3	19.2	18.2	22.0
Total	**26.5**	**37.2**	**31.9**	**31.6**

Trend of Contraceptive Methods Switching Behaviour

Switching of contraceptive methods is an integral part of contraceptive behaviour to enable women choose a method of their choice and that best suits their needs of spacing or limiting birth. Women use a contraceptive method which gives her protection and a feeling of trust to continue a method that minimizes her risks of unintended pregnancy and allows her to have desired number of children. Almost 14 percent women switched method as reported in Phase I. Survey results reveal almost a quarter of these women followed in the panel switched methods across all remaining Phases. Review of panel of women who switched in Phase-I survey, reveals persistence across three remaining surveys in all three status of contraceptive use (Figure 4 based on Table 14) reflecting a gradual increase in percent women who switched methods. About a three out of five women discontinued contraceptive use between Phase-II to Phase-IV who reported to have switched in Phase I.

Figure 4: Tracking users who switched in phase I to see change in use status during phase II-IV



Analysis of Relationship of Factors Influencing Switching of Contraceptive Methods

Contraceptive Method switching is done by women for different reasons and various factors effect differently across Phases of survey. This section explores the pattern of factors that either facilitates or restrains contraceptive methods switching. The analysis is based on percentage of women who switched in each category of selected indicator. The analysis takes account of three sets of indicators reflected in the framework and include: background indicators, interaction with healthcare staff, immediate factors related to information received by women in counseling by healthcare staff. Key results of this analysis are presented below (Table 18):

- Younger women are more likely to switch methods to meet their birth spacing or limiting needs while older women (age 35 and above) are less likely to switch.
- Women with Secondary or higher education are more likely to switch methods to meet their changing reproductive health needs
- Women with 3 and more parity (in Phase I and II) are more likely to switch than women in Phase III and IV.
- Visit of LHW to women household overall does not reflect any changes in switching of methods rather their interaction has no noticeable effect on method switching.
- Woman's visit to health facility does reflect slight increase in likelihood of switching methods but counseling by healthcare provider makes a real difference across all years of survey.
- Though unintended pregnancy does not show any noticeable effect on method switching but women desire for future birth do reflect high likelihood to switch in Phase I.
- Women counseled for side effects and how to handle side effects does reflect lower level of switching methods (esp in Phase III) only.
- Similarly, informing women regarding other methods does lead to lower level of switching (in year 3) but not in a major way.

Table 18: Percentage of women who switched contraception methods by background and intermediate factors (over four phases)

Variables	Phase 1	Phase 2	Phase 3	Phase 4
	%	%	%	%
Background variables				
Age of Women				
<= 30	14.9	19.9	28.5	23.5
30 - 34	30.2	22.1	23.1	25.5
35- 39	31.6	21.1	20.7	19.1
40 - 44	32.1	16.5	19.4	13.0
45 Plus	25.0	5.4	13.9	8.6
Area of Residence				
Urban	25.8	16.9	23.2	19.2
Rural	25.4	19.9	20.9	17.3
Education of Women				
None	21.8	21.0	17.5	15.0
Primary	31.3	11.3	22.0	13.4
Middle	23.8	16.7	25.1	18.5
Secondary	22.7	17.2	26.5	28.7
Higher	30.6	25.8	25.6	21.1
Wealth Index				
Lowest	20.6	21.1	24.6	18.2
Second	16.5	17.0	24.7	16.4
Middle	24.7	15.9	23.8	17.0
Fourth	33.5	22.0	20.2	23.6
Highest	29.7	17.2	17.0	15.5
Parity				
1-2	13.6	9.9	21.3	14.8
3-4	29.2	20.0	26.0	20.7
5 and above	28.2	22.3	15.7	15.4
Interaction with Health Staff				
In last 12 months LHW visited to talk about FP				
No	24.2	18.5	19.4	16.7
Yes	27.9	18.9	26.7	20.6

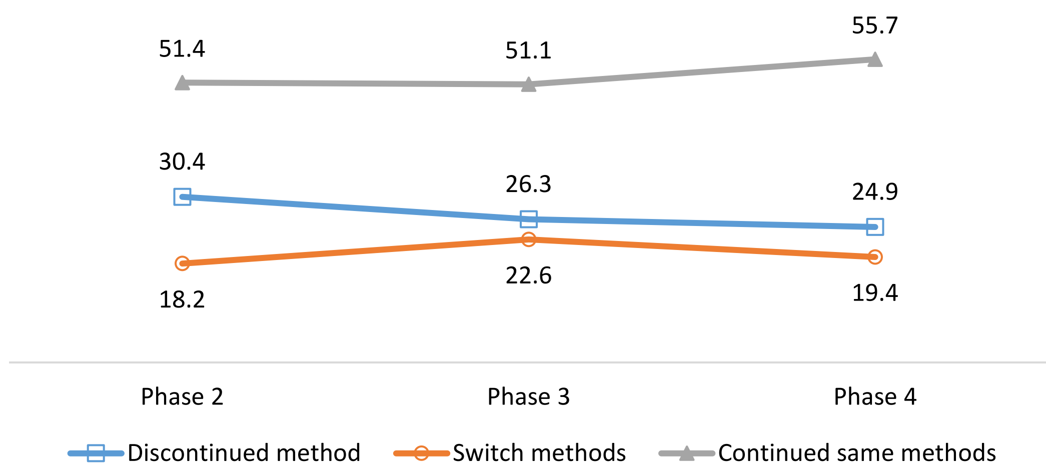
Variables	Phase 1	Phase 2	Phase 3	Phase 4
	%	%	%	%
In last 12 months respondent visited health facility				
No	25.9	14.8	18.0	14.4
Yes	27.2	20.9	23.7	20.2
Any staff member at health facility speak about FP				
No	25.6	16.9	19.5	15.2
Yes	33.7	26.6	36.9	38.4
Unintended Pregnancy				
No	28.4	18.3	21.6	17.5
Yes	22.9	19.9	22.7	19.7
Future Desire for Birth				
Yes	46.3	15.7	27.2	17.9
No	27.8	24.2	30.0	24.1
Cannot get pregnant / sterilized	4.3	11.9	6.4	5.7
Undecided	34.2	19.6	23.8	27.6
Immediate Factors				
Told about side effects of current method to avoid pregnancy				
No	26.9	19.9	25.1	18.8
Yes	25.9	16.0	12.3	15.9
Told how to deal with side effects				
No	27.6	19.6	24.8	19.0
Yes	24.3	16.5	13.3	15.1
Told about other FP methods				
No	25.0	19.1	23.6	18.8
Yes	30.3	17.3	15.5	16.0
Total	**26.5**	**18.7**	**21.8**	**18.1**

In summary, method switching rises with age of women esp beyond age 30, when they have achieved their desired level of family size and need for protection against unintended pregnancy rise. Switching methods is also positively associated with parity esp beyond 2 children. This switch of method is in search of a method that has higher efficacy, minimizes risk of unintended pregnancy and least side effects. Counseling plays an important role in determining selection of an effective method by a woman and thus with better knowledge regarding side effects and to deal with side effects along with to avoid unintended pregnancy play important role in switching methods. An important factor that determines switching of method is the woman's desire for future birth. With no future desire of more births, women settle for most effective method and don't switch.

Trend of Continuing Use of Same Contraceptive Methods

Continuing use of same contraceptive methods is backbone of contraceptive behaviour to enable women protect herself from unintended pregnancy. It is noted that 26 percent of women in the Phase I continued use the same method that they started first. Among these women, more than half (51-56%) across each subsequent survey show continuing use of contraceptive method meeting women method needs (Figure 5 based on Table 14). Less than third of these women discontinued in Phase II further falling to 25 percent among them by Phase IV. It is interesting to note that around 18 to 19 percent women (who had continued using method) switched to other methods over the remaining three surveys. These women switched to find better methods to give them more protection or minimize side effects.

Figure 5: Tracking users who continued same method in phase I to see change in use status during phase II-IV



Analysis of Factors Related to Use of the same Contraceptive Methods

Use of the same contraceptive method by women over years also reflect influence of certain factors. Here the key results (Table 19):

- Age of women is a factor that influences use of same method. Women age 35 and above reflect persistence in use of the same method as higher percentage of women indicates the same
- Less educated women reflect higher likelihood of use of the same method most probably they started using tubal ligation for long term protection against pregnancy.
- Parity is an important factors in this analysis. Low parity women (with 1-2 children), are less likely to use same method while women with more than three children reflect commitment and persistence to use the same method.
- Women who had interaction with a healthcare provider at the facility, reflect lower likelihood of using the same method. On the contrary, women who did not interact with healthcare provider show higher chances of using same method over years.
- Interesting results emerge for examining women's desire for future births. Women with no desire for future births, are more likely to use the same method persistently over years implying their desire to minimize risk of unintended pregnancy in the future with same method she finds effective and build trust in its use.

Table 19: Percentage of women who continued use same method by background and intermediate factors (over four years)

Variables	Phase 1 %	Phase 2 %	Phase 3 %	Phase 4 %
Background variables				
Age of Women				
<= 30	50.8	30.2	29.3	31.4
30 - 34	43.0	45.5	43.4	46.3
35- 39	49.5	48.9	55.3	58.1
40 - 44	44.7	51.6	52.6	60.6
45 Plus	55.0	51.6	53.5	49.0
Area of Residence				
Urban	46.0	49.5	48.8	52.4
Rural	49.2	40.6	44.6	49.0
Education of Women				
None	51.6	46.1	53.7	51.0
Primary	46.3	47.2	46.9	58.3
Middle	48.2	42.7	45.4	52.1
Secondary	44.7	37.3	31.7	38.2
Higher	44.6	43.7	41.4	47.4
Wealth Index				
Lowest	56.8	37.6	47.8	49.5
Second	57.6	47.4	43.6	50.7
Middle	47.0	49.8	45.8	49.2
Fourth	38.9	41.3	40.2	48.1
Highest	42.6	44.6	52.8	53.8
Parity				
1-2	46.6	24.0	23.9	31.1
3-4	46.9	46.3	44.4	50.8
5 and above	50.6	53.7	60.0	57.3
Interaction with Health Staff				
In last 12 months LHW visited to talk about FP				
No	48.1	46.6	49.3	50.8
Yes	47.6	41.1	40.2	49.5

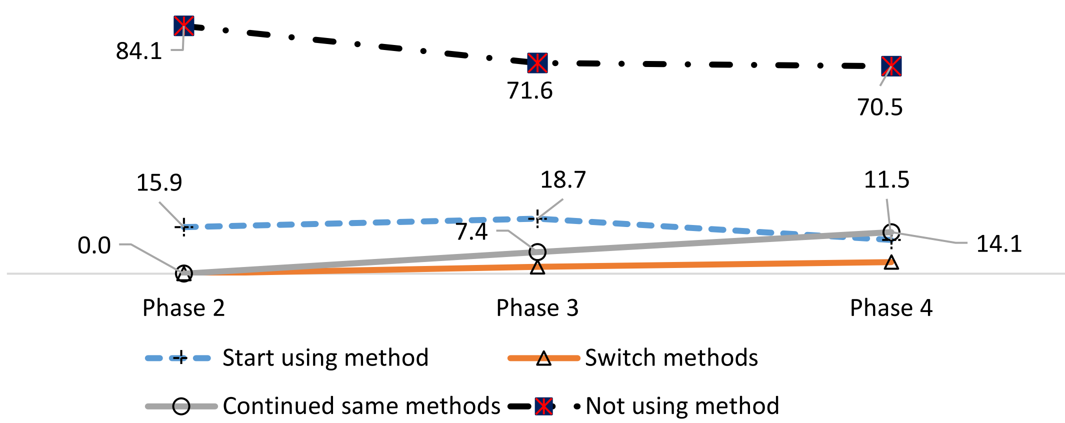
Variables	Phase 1 %	Phase 2 %	Phase 3 %	Phase 4 %
In last 12 months respondent visited health facility				
No	47.7	49.3	51.7	53.2
Yes	48.1	41.2	43.6	48.7
Any staff member at health facility speak about FP				
No	48.6	45.8	47.9	53.2
Yes	42.9	36.9	35.6	29.6
Unintended Pregnancy				
No	46.3	41.4	45.4	49.4
Yes	51.0	53.0	49.6	53.0
Future Desire for Birth				
Yes	39.8	20.3	13.7	20.2
No	49.0	39.5	36.3	41.8
Cannot get pregnant / sterilized	52.8	77.9	83.7	81.0
Undecided	47.6	21.6	36.5	35.3
Immediate Factors				
Told about side effects of current method to avoid pregnancy				
No	47.9	34.6	37.0	45.9
Yes	48.0	65.9	73.4	63.7
Told how to deal with side effects				
No	47.1	34.8	37.4	46.6
Yes	49.6	66.4	72.1	62.5
Told about other FP methods				
No	48.3	38.0	40.7	46.5
Yes	46.8	63.5	66.3	62.1
Total	**47.9**	**44.2**	**46.3**	**50.4**

- Exciting results are noted for three intermediate variables: advise women about side effects; advised regarding how to handle side effects; and gave information regarding other methods. All three variables reflect higher and increased likelihood of using same method (over years). These three aspects show high correlation among themselves but all highlight importance of persistence use of same method over four years by the panel women.

Tracking Non-Users of Contraceptive Methods

Non-users of contraceptive methods in Phase-I also show some dynamism as a small percentage of woman start using contraception and some women overtime reflect switching methods. It is noted that little less than half (46 percent) women who were non users in Phase-I. A large segment of these women continued their non-use of contraception status in Phase-II and declined to around 70 percent in Phase III and IV (Figure 6 based on Table 14). It is interesting to note that among the non-users noted in Phase I, 16 percent of them started using a method in Phase II rising to 19 percent and falling to 12 percent in Phase IV survey. A very small percent switched methods over three surveys and the remaining continued using the method they adopted in Phase II. Tracking of women who were non-users in Phase-I does reflect changing behaviour of small percent of women seeking protection against unintended pregnancy.

Figure 6: Tracking non-users in phase I to see changes in use status during phase II-IV



Reasons for Discontinuation of Contraceptive Methods – Panel Data Results

Panel women discontinuing use of a contraceptive methods were asked to share the key reason for doing so in each Phase of the survey. Reasons for discontinuing contraception can be basically categorized in two broad segments: Fertility Related Reasons; and Method Related Reasons.

(i) Trend Analysis of Panel Data

The trends from the panel data reveal an increasing proportion of women discontinuing contraception due to fertility-related reasons, rising from 50% in Panel 1 to 61% in Panel 4. Conversely, discontinuation due to method-related reasons decreased from 41% in Panel 1 to 30% in Panel 4 (Table 20). Here's a detailed look at the trends, implications for contraceptive dynamics in Punjab, and recommendations for addressing these findings.

- Fertility-Related Reasons: The increase in fertility-related reasons for discontinuation suggests that over time, a growing number of women may feel they have achieved their desired family size or have developed a preference for spacing births differently. This could be influenced by changing life circumstances, economic factors, or personal preferences.
- Method-Related Reasons: The decline in method-related reasons indicates some improvement, perhaps in terms of method quality, counseling, or management of side effects. However, remaining 30% still indicates a need for further attention to method-specific issues.

Table 20: Percent distribution of reasons for discontinuing use of contraception in each phase

Reasons for Discontinuation of Methods	Phase I		Phase II		Phase III		Phase IV	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Wanted to become pregnant	75	37.1	88	43.9	73	33.1	93	36.9
Infrequent sex / husband away	17	8.5	16	8.0	36	16.4	41	16.4
Difficult to get pregnant / Menopausal	8	4.0	7	3.6	15	7.0	19	7.6
Became pregnant while using	14	6.8	14	7.0	26	11.8	25	9.9
Fear of side effects	34	16.7	14	7.0	24	11.1	19	7.6
Health concerns	12	6.0	19	9.6	21	9.3	16	6.5
Experienced side effects	10	5.0	12	6.1	6	2.7	8	3.0
Husband disapproved	4	1.8	1	0.3	3	1.3	3	1.1
Costs too much	1	0.4	0	0.3	0	0.0	0	0.0
Inconvenient to use	3	1.6	7	3.5	1	0.7	3	1.1
Wanted more effective method	2	1.1	2	1.2	1	0.4	0	0.0
No method available	2	1.2	2	1.0	1	0.3	3	1.1
Lack of access/too far	0	0.0	0	0.0	2	0.9	0	0.0
Fertility Related Reasons		**49.6**		**55.5**		**56.5**		**60.9**
Method Related Reasons		**40.6**		**36.0**		**38.5**		**30.3**
Total	**182**	**90.2**	**184**	**91.5**	**210**	**95.0**	**231**	**91.2**

(ii) Understanding Contraceptive Discontinuation Dynamics in Punjab

These trends provide valuable insights:

- Shifting Motivations: The growing proportion of fertility-related reasons points to evolving reproductive intentions, possibly due to changes in family planning preferences or economic considerations. As women's reproductive goals shift, so too do their contraceptive needs.
- Need for Enhanced Method Counseling: Despite a decrease in method-related discontinuation, a significant proportion still experience challenges, suggesting that counseling and management of side effects need further reinforcement to improve user satisfaction.
- Programmatic Focus on Life-Cycle Needs: The data indicate that different life stages and shifting priorities play a significant role in contraceptive dynamics. Programs should therefore adopt a life-cycle approach to address changing needs over time.

8. MULTIVARIATE ANALYSIS

Statistical Analyses

The analysis conducts descriptive statistics to report socio-demographic characteristics of women who continued, switched, or discontinued method in each Phase of the survey. Later stage, separate, multivariable logistics regression analyses is conducted to assess predictors of both discontinuation and switching. To develop final multivariate models, the exercise initially conducts unadjusted analyses assessing predictors for each model, including: Background variables - age, place of residence, parity, education attainment, and wealth status; and Intermediate Influencing factors like: Facility staff told woman about (i) side effects of current method, and (ii) other FP methods; LHW visit to woman and talk about FP, women visited health facility in the last 12 months, whether health facility staff spoke about FP, women experienced unintended pregnancy, and woman's desire for future birth. The analysis encompasses all variables and checked for multi--collinearity by running correlations matrix and removing a variable that has correlation coefficient higher than 0.7.

The focus of the analysis remains three key dependent variables: contraceptive discontinuity (women who stopped a method she started with initially), contraceptive switching (women who shifted methods from their original method and in subsequent Phases), and finally continued use of the same method (women maintained the same method she started initially).

Analysis of Contraceptive Discontinuation Behaviours

This section focuses on the dependent variable - Contraceptive discontinuation Behaviour (women stopped using contraception). Two sets of independent variables are included in the regression: Background variables; and Intermediate Variables. Logistics regression full models was run to assess how various variables associated with same panel of women explains changes in the discontinuation of contraceptive over four surveys (Table 21). The results are presented in two sets, initially for background variables, followed by intermediate variables.

<u>Age in completed years</u>: In Phase I (OR = 0.994) reflects for each additional year of age, the odds of discontinuing contraceptive use slightly decrease by 0.6% (since the OR is just below 1). This indicates a small negative association between age and discontinuation in Phase I. For Phase II, the OR is statistically significant, and greater than 1 (OR = 1.043), which reflects that for each additional year of age, the odds of discontinuation increase by 4.3%. This suggests that older women are more likely to discontinue contraceptive use in Phase II. Coefficients for Phase III (OR = 1.029) and Phase IV (OR = 1.039) are also statistically significant but relatively lesser than Phase I and indicate a 2.9% and 3.9% increase in odds of discontinuation with each additional year of age. The odds ratios of Phase II to Phase IV reflect that older women are more likely to discontinue contraceptive use compared to younger individuals, and the findings are statistically significant. In summary, older women in Punjab have increasing odds of discontinuation as they progress in age, especially in Phase II and IV. This might be an access issue initially related to COVID restrictions and later non-availability of supplies in Health facilities besides age-related health concerns, changes in preference, or other age-associated reasons for stopping contraception.

<u>Place of Residence</u> (Urban as base category): Regression coefficients (Odds Ratios) for rural areas for four Phases are (OR 1 = 0.83), (OR = 1.506), (OR = 1.388), and (OR = 1.1). Phase I ORs suggests that rural residents were somewhat less likely to discontinue in year 1. The situation changes dramatically in Phase II, where the coefficient shows a significant increase in odds by

50.6% for rural women relative to urban women, indicating rural women had a much higher likelihood of discontinuing. The trend of increased discontinuation persists in Phase III for rural women have 38.8% higher odds of discontinuing than urban women. The effect in Phase IV is minor and not statistically significant, indicating a slight but not conclusive increase in discontinuation for rural women. In summary, rural women witness significantly higher discontinuation rates, suggesting possible supplies constraint issues in rural Punjab.

Parity (Number of children) relative to having fewer than 3 children: For Parity 3-4 the ORs Phase I are (OR = 0.847), Phase II (OR = 0.511), Phase III (OR = 0.640), and Phase IV (OR = 0.654). For Phase I women with 3-4 children have 15.3% lower odds of discontinuation compared to those with fewer than 3 children. For Phase II the odds of discontinuation are significantly lower (by 48.9%) for women with 3-4 children, indicating a strong negative relationship. The discontinuation odds are 36% lower in Phase III for women with 3-4 children. A similar pattern is observed in Phase IV, with a 34.6% lower likelihood of discontinuation.

Women with parity 5 and above the ORs for successive Phases are: (OR = 0.938), (OR = 0.317), (OR = 0.553) and (OR = 0.583). Phase I indicate a minor effect but in remaining Phases these are significant. Phase II has significantly lower odds (68.3%) of discontinuing contraception, followed by 44.7% lower odds of discontinuation in Phase III and 41.7% lower in Phase IV, showing consistency in lower discontinuation for high-parity women. In summary, women with parity (3-4 or 5+) is consistently associated with lower discontinuation rates. This result suggests that women with more children are more committed to limiting family size and continue using contraceptives.

Women's Educational Attainment (relative to no education): Odds ratio for Primary, Middle and Secondary educational attainment do not reflect any significant results relative to women with no education and thus are not being discussed. For women with higher education the ORs for four Phases are: (0.380), (0.473), (0.586), and (0.667). The trend reflects that woman with higher education (compared to those with no education) have 62% lower odds of discontinuing contraception in Phase I and continues to decline in subsequent Phases by 52.7% (Phase II), 41.4% (Phase III) and 33.3% (Phase IV). In summary, women with higher education consistently have lower odds of discontinuation, but the strength of this effect decreases over time, indicating that the advantage of higher education in promoting consistent contraceptive use may diminish slightly with the changing socio-economic or service delivery landscape in Punjab.

Logistics Regression Analysis of Intermediate Factors on Contraceptive Discontinuity

Detailed set of odds ratios (ORs) for various independent variables over four years, are presented below reflecting their influence on contraceptive discontinuation in Punjab.

1. Service Provider told woman about side effects of current method: The Odds Ratios show a decreasing trend from 0.897 to 0.580 and 0.683 for three Phases. There is a consistent reduction in odds of discontinuation over time for women informed about the side effects. It implies that service provider discussing side effects with women significantly lowers the likelihood of discontinuation, particularly in Year 3 (OR = 0.580). Awareness and management of side effects are crucial in sustaining contraceptive use. Side Effects Awareness by service providers significantly reduces discontinuation of contraceptives.

2. Service Provider told woman about other FP methods: The Odds Ratios fluctuate between 1.675 (Phase I) to 1.136 (Phase IV). The ORs show variability over time. A higher OR of 1.675 in Year

1 indicates that informing women about other methods might initially increase the likelihood of discontinuation, possibly due to supply side constraints could be a major factor explaining the increase in discontinuation. However, in later years, the effect fades, and the relationship is not statistically significant.

3. LHW visits to talk about FP: The Odds ratios range from 0.823 to 0.719 in Year 4. The OR of 0.719 in Phase IV indicates that regular visits by Lady Health Workers (LHWs) have an effect in reducing the chances of discontinuation, but this effect only becomes statistically significant in the last year. It suggests the importance of consistent outreach efforts by LHWs. LHW Visits to households show significance in indicating the importance of outreach efforts.

4. Respondent visited health facility in the last 12 months: The Odds ratio does not show any significant effect, as ORs hover around 1.0. Visiting a health facility did not show a statistically significant impact on discontinuation and indicates that merely visiting a facility doesn't guarantee adequate counseling or method reinforcement.

5. Health facility staff spoke about FP: The Odds ratios decrease from 1.191 in Phase I to 0.701 in Phase III rises to 0.947 in Phase IV. The trend indicates that over time, staff members talking about FP initially led to higher odds of discontinuation but then reduced discontinuation rates in Year 3. However, the statistical significance is not strong enough to make a decisive conclusion.

6. Unintended Pregnancy: The odds ratios fluctuate from 0.935 in Phase I to 0.873 in Phase IV. The odds ratios here are consistently below 1 but not statistically significant, indicating that unintended pregnancies have no clear direct relationship with discontinuation in the analysis. Women with unintended pregnancies might not necessarily discontinue due to complex emotional or social factors.

7. Future Desire for Birth: The odds ratios show strong effect with ORs around 0.3-0.4 consistently. The ORs are consistently well below 1 and statistically significant, indicating that women with no desire for future births have a markedly lower likelihood of discontinuation. This suggests that desire for more children is a strong determinant in continued contraceptive use and lowering discontinuity of use.

Table 21: Logistics regression results of women who discontinued use of contraception – full model over four phases

Variables	Phase 1					Phase 2	Phase 3	Phase 4
	Model 1 odds ratio	Model 2 odds ratio	Model 3 odds ratio	Model 4 odds ratio	Model Full odds ratio	Model Full odds ratio	Model Full odds ratio	Model Full odds ratio
Background variables								
Age of Women								
In complete years	0.961***			0.960***	0.994	1.043***	1.029*	1.039***
Area of Residence								
Urban (base)								
Rural	0.843			0.856	0.83	1.506**	1.388*	1.1
Education of Women								
None (base)								
Primary	0.659*			0.670*	0.708	1.28	1.072	0.811
Middle	0.599*			0.589*	0.556*	0.936	0.774	0.781
Secondary	0.755			0.77	0.654	0.989	1.148	0.819
Higher	0.432**			0.438**	0.380***	0.473**	0.586	0.667
Wealth Index								
Lowest (base)								
Second	1.559			1.632*	1.577	0.767	0.953	0.954
Middle	1.281			1.332	1.332	0.67	1.242	1.07
Fourth	1.519			1.51	1.476	0.64	1.309	0.803
Highest	1.662			1.676	1.68	0.893	0.808	0.591
Parity								
1-2 (base)								
3-4	0.582**			0.594**	0.847	0.511***	0.640*	0.654*
5 and above	0.539**			0.559**	0.938	0.317***	0.553**	0.583*
Immediate Factors								
Told about side effects of current method to avoid pregnancy								
No (base)								
Yes		0.592**		0.679	0.897	0.696	0.580*	0.683
Told about other FP methods								
No (base)								
Yes		1.777**		1.746**	1.675*	0.784	0.98	1.136
Interaction - Health								
In last 12 months LHW visited to talk about FP								
No (base)								
Yes			0.813		0.823	1.157	0.788	0.719*
In last 12 months respondent visited health facility								
No (base)								
Yes			1.068		1.069	1.187	1.247	1.032
Any staff member at health facility speak about FP								
No (base)								
Yes			1.3		1.191	0.858	0.701	0.947
Unintended Pregnancy								
No (base)								
Yes			0.921		0.935	0.775	0.956	0.873
Future Desire for Birth								
Yes (base)								
No			0.430***		0.422***	0.404***	0.424***	0.318***
Cannot get pregnant/ sterilized			0.0715***		0.0650***	0.0937***	0.119***	0.0934***
Undecided			0.558**		0.540**	1.158	0.712	0.509**
Constant	2.388*	0.387***	0.939	2.248	1.317	0.683	0.603	0.904
	(1.209)	(0.0373)	(0.191)	(1.148)	(0.744)	-0.392	-0.347	-0.543
Observations	770	770	770	770	770	770	770	770

Standard error in parentheses*** p<0.01, ** p<0.05, * p<0.1

Analyzing Contraceptive Method Switching

The section first presents and interprets the Odds Ratios (ORs) based on background variables for contraceptive switching over four years, looking at each variable's trend (Table 22).

Age in Completed Years: For Phase I, the OR above 1 suggests that an increase in age slightly increases the odds of switching contraceptive methods. However, for the remaining years, the ORs are below 1, indicating that older women have slightly lower odds of switching contraceptives compared to younger women, and the relationship appears statistically significant across the four years.

Place of Residence (Urban as Base): The ORs indicate that women living in rural areas generally have a higher likelihood of switching methods compared to those in urban areas, especially in Phase II and Phase IV. However, the ORs aren't statistically significant, except for Phase II, so the results need to be interpreted cautiously.

Parity (3-4 and 5+) Relative to Parity Less Than 3: The odds of switching methods significantly increase for women with 3-4 children compared to those with fewer children, particularly in Phases II and IV where the ORs are both high and statistically significant. Reducing risk of unintended pregnancy is a priority to these women with more than 2 children. We also note that women with 5 or more children have significantly higher odds of switching methods, especially in Phase II, with the OR of 5.092 being quite substantial. This trend indicates that women with larger families are actively switching between contraceptive methods. The immediate reason that could relate to women adopting tubal ligation with higher parity to protect themselves from any future unintended pregnancy.

Educational Attainment (Relative to No Education): In Phase I, primary pass women are more likely to switch compared to those with no education. However, in Phase II, the OR drops below 1, suggesting that they have low likelihood to switch in Phase-II, probably due to low supplies available during the period. Women with secondary education see an increased likelihood of switching in Years 3 and 4, indicating a positive association with education level. Higher education consistently increases the odds of switching, especially in Phase III. This suggests that better-educated women might be more proactive in choosing different contraceptive methods.

Wealth Quintile (Relative to Poorest Segment): Women from wealthier households in the fourth quintile were significantly more likely to switch methods in Year 2 but much less likely in Year 3. This variability suggests the impact of wealth on switching behavior isn't linear over time. In Phase III, women from the highest wealth quintile are significantly less likely to switch compared to those in the poorest segment. This might reflect stability in contraceptive use among the wealthiest women in some years.

Analysis of Intermediate Variables on Contraceptive Switching Behaviour

A detailed interpretation of each intermediate dependent variable's Odds Ratio (OR) and their significance in the context of contraceptive switching behaviour.

1) Told Women about Side Effects of Current Method: The results show a mixed impact over the four years, with no statistically significant effects. The ORs hover close to 1, indicating that counseling women about side effects did not have a major impact on contraceptive switching behavior across the years.

Table 22: Logistics regression-based odds ratios of women who switched methods of contraception – full model over four phases

Variables	Phase 1					Phase 2	Phase 3	Phase 4
	Model 1 odds ratio	Model 2 odds ratio	Model 3 odds ratio	Model 4 odds ratio	Model Full odds ratio	Model Full odds ratio	Model Full odds ratio	Model Full odds ratio
Background variables								
Age of Women								
In complete years	1.055***			1.053***	1.035**	0.944***	0.961**	0.947***
Area of Residence								
Urban (base)								
Rural	1.182			1.15	1.133	1.324	1.034	1.302
Education of Women								
None (base)								
Primary	1.653**			1.643**	1.573*	0.602*	1.213	1.122
Middle	1.205			1.22	1.307	0.682	1.448	1.122
Secondary	1.106			1.092	1.282	0.958	1.652	2.211**
Higher	1.712			1.713	1.832*	1.491	2.365**	1.32
Wealth Index								
Lowest (base)								
Second	0.665			0.638	0.649	1.361	0.909	0.669
Middle	1.167			1.131	1.106	1.341	0.574*	0.695
Fourth	1.646			1.644	1.648	1.823*	0.474**	1.096
Highest	1.323			1.309	1.277	1.288	0.474**	0.786
Parity								
1-2 (base)								
3-4	1.764**			1.726**	1.471	3.109***	1.649*	2.558***
5 and above	1.595			1.553	1.228	5.092***	1.128	2.731**
Immediate Factors								
Told about side effects of current method to avoid pregnancy								
No (base)								
Yes		1.573*		1.402	1.084	0.755	0.789	0.975
Told about other FP methods								
No (base)								
Yes		0.691		0.711	0.759	1.411	0.781	0.89
Interaction - Health								
In last 12 months LHW visited to talk about FP								
No (base)								
Yes			1.387*		1.399*	0.827	1.158	1.156
In last 12 months respondent visited health facility								
No (base)								
Yes			0.993		1.025	1.137	1.142	1.055
Any staff member at health facility speak about FP								
No (base)								
Yes			0.922		1.019	1.607*	1.810**	2.423***
Unintended Pregnancy								
No (base)								
Yes			1.013		1.05	0.819	0.777	1.147
Future Desire for Birth								
Yes (base)								
No			1.858**		1.452	1.66	1.309	1.657
Cannot get pregnant/ sterilized			4.700***		3.462***	0.697	0.380**	0.5
Undecided			1.191		1.071	1.012	0.876	1.592
Constant	0.0201*** (0.0117)	0.301*** (0.0309)	0.136*** (0.0363)	0.0219*** (0.0128)	0.0245*** (0.0155)	0.292* -0.201	0.957 -0.599	0.371 -0.272
Observations	770	770	770	770	770	770	770	770

Standard error in parentheses*** p<0.01, ** p<0.05, * p<0.1

2) Told Women about Other FP Methods: Again, the lack of consistent direction and no statistical significance indicates that information about other family planning methods did not contribute strongly to contraceptive switching decisions.

3) LHW Visit to Talk about FP in Last 12 Months: LHW visits show statistical significance in Year 1, indicating that visits in that year increased the likelihood of switching by 1.4 times. However, this effect is not statistically significant in subsequent years.

4) Respondent Visited Health Facility in Last 12 Months: Across all four years, there are no significant effects of visiting a health facility on contraceptive switching behavior. The ORs are all close to 1, suggesting that these visits to health facility had no substantial impact on method switching.

5) Staff Member at Health Facility Spoke about FP: Conversations with Health facility staff show a progressively stronger impact over time. Starting with significance in Phase II, the ORs increase to show that in Phase IV, women who were spoken to about family planning by a health facility staff were 2.4 times more likely to switch contraceptives. This suggests that health facility staff engagement played an increasing role in influencing switching behavior.

6) Unintended Pregnancy: The effects of unintended pregnancy are inconsistent and statistically insignificant, suggesting that unintended pregnancies did not significantly drive contraceptive switching behavior.

7) No Desire Future for Birth: Although ORs are higher than 1 across all four years, there is no statistical significance, indicating that women with no desire for future births were not significantly more likely to switch contraceptives.

8) Woman is Sterilized: women who switched to sterilization in Phase I reflect significantly more likely to adopt the permanent contraceptives (OR = 3.46). However, in subsequent years, the ORs are below 1 and statistically significant, suggesting almost non-existent likelihood of switching post-sterilization in later years.

Analyzing Behaviour of Continued Use of Same Contraceptive Method

This section now focuses on continued use of same method over four Phases. Below are the interpretation of the odds ratios (ORs) related to background factors from the logistic regression model concerning the use of the same contraceptive method in Punjab (Table 23).

Age: In Phase I, each additional year of age is associated with a 2% decrease in the odds of using the same contraceptive method compared to the previous year. For the remaining three years, regression analysis of age does not significantly impact the odds of using the same method. Generally, age has a negligible effect on the odds of method continuation in these years meaning age has minimal impact on contraceptive continuation.

Place of Residence - Rural Areas (compared to Urban): In Phase I survey, women in rural areas have 6.8% higher odds of continuing the same contraceptive method compared to urban women. It is noted that for Phase II and Phase III, the odds ratios are significantly lower (41.9% lower) for rural women to continue using the same method compared to urban women followed by a 30.3% decrease in the odds for rural women to continue the same method compared to urban women. In Phase IV of the survey, rural women have a 21.8% decrease in the odds of method continuation compared to urban women, though this is not statistically significant. Overall, significant results in Phase II and III may reflect serious supply constraints faced in rural facilities that led to decline in same method use. Rural Residents generally linked to a lower likelihood of consistent contraceptive use, with the most pronounced effect in Phases II and III.

Parity (Number of Children) - Parity 3-4: Women with 3-4 children have a 10% decrease in the odds of using the same method in Phase II compared to women with fewer children in Punjab. The results reflect women trying to search for better contraceptive options to lower their risks of unintended pregnancies. Furthermore, results for Phase II and III show no significant change in odds for this group of continuing the same method. In Phase IV women with 3-4 children witness a decrease of 14% in the odds compared to those with fewer children (less than 3).

Parity 5 and above: In Phase I, women with 5 or more children have a 3% decrease in the odds of using the same method which increased (by 6.8%) for continuing the same method in Phase II. Results for Phase III show that women with 5 or more children have a significant increase (55.2%) in the odds of method continuation, which in Phase IV decreased by 5.4% in the odds compared to the previous year. These results may imply women turn to tubal ligation as the last resort method and stock to it for full protection against pregnancy in the future. Women with higher parity (especially 5+ children) tend to increase the odds of continuing the same method, particularly in Phase III, though this effect is variable.

Educational Attainment - Primary Education (compared to no education): Women with primary education have 57.3% higher odds of continuing the same method in Phase I. The odds ratios decrease by 39.8% for this group in the second Phase and but an increase by 21.3% in the odds of method continuation is noted for Phase III. Results show a slight increase (12.2%) in the odds of use of the same method by these women in Phase IV compared to the previous year. These women prefer persistence.

- Secondary Education: Women with Secondary education show 18.4% increase in odds of continuing the same relative to women with no education in Phase I. A negligible increase in odds is noted for Phase II, but Phase III reflects a significant decrease (44.2%) in the odds of method continuation, which continues in Phase IV but with a decrease of 32.5% in the odds compared to the previous year.
- Higher Education: Women with higher education show a 36.7% increase in odds in Phase I relative to women with no education. This further rises to 40.7% in Phase II but decline by 18.7% in the odds in Phase III compared to the previous year. Interestingly, results reveal a 22.7% increase in the odds of method continuation. This group of women reflects persistence in continuing the same method over years. Higher education women are generally associated with greater consistency in method use, but there are fluctuations, especially for women with secondary education in Phases III and IV.

Overall, the primary and higher education women in Punjab generally associate with higher odds of using the same contraceptive method, though there are fluctuations by year. Notably, secondary education shows a drop in odds in Phases III and IV, suggesting that women with secondary education may be more open to switching methods in certain years.

Table 23: Logistics regression results of women who continued use the same method of contraception – full model over four phases

Variables	Phase 1 Model 1 odds ratio	Phase 1 Model 2 odds ratio	Phase 1 Model 3 odds ratio	Phase 1 Model 4 odds ratio	Phase 1 Model Full odds ratio	Phase 2 Model Full odds ratio	Phase 3 Model Full odds ratio	Phase 4 Model Full odds ratio
<u>Background variables</u>								
Age of Women								
In complete years	0.994			0.995	0.981	1.001	1.005	0.999
Area of Residence								
Urban (base)								
Rural	1.011			1.016	1.068	0.581***	0.697**	0.782
Education of Women								
None (base)								
Primary	0.969			0.962	0.932	1.12	0.78	1.134
Middle	1.326			1.328	1.305	1.358	0.946	1.181
Secondary	1.167			1.158	1.184	1.045	0.558*	0.675
Higher	1.351			1.341	1.367	1.407	0.813	1.227
Wealth Index								
Lowest (base)								
Second	0.888			0.888	0.911	1.043	1.133	1.335
Middle	0.739			0.737	0.76	1.211	1.251	1.184
Fourth	0.491***			0.492***	0.517**	1.014	1.338	1.132
Highest	0.541**			0.546**	0.573*	0.998	2.257**	1.936**
Parity								
1-2 (base)								
3-4	1.146			1.147	0.9	1.003	1.028	0.86
5 and above	1.302			1.298	0.97	1.068	1.552	0.946
<u>Immediate Factors</u>								
Told about side effects of current method to avoid pregnancy								
No (base)								
Yes		1.062		1.016	0.984	1.680*	1.866**	1.465
Told about other FP methods								
No (base)								
Yes		0.839		0.869	0.871	0.957	1.305	0.934
<u>Interaction - Health</u>								
In last 12 months LHW visited to talk about FP								
No (base)								
Yes			0.922		0.917	0.958	1.121	1.218
In last 12 months respondent visited health facility								
No (base)								
Yes			0.957		0.933	0.788	0.747	0.94
Any staff member at health facility speak about FP								
No (base)								
Yes			0.861		0.863	0.782	0.768	0.483**
Unintended Pregnancy								
No (base)								
Yes			1.055		1.012	1.430*	1.299	1.033
Future Desire for Birth								
Yes (base)								
No			1.533**		1.802**	1.898**	2.478***	2.534***
Cannot get pregnant/ sterilized			1.659**		2.171***	8.598***	12.77***	11.70***
Undecided			1.608*		1.731*	0.855	2.096**	1.66
Constant	1.278	0.953	0.683**	1.288	1.576	0.391*	0.175***	0.286**
	(0.575)	(0.0824)	(0.133)	(0.582)	(0.766)	(0.219)	(0.106)	(0.172)
Observations	770	770	770	770	770	770	770	770

Standard error in parentheses*** p<0.01, ** p<0.05, * p<0.1

Wealth Quintiles - Fourth Wealth Quintile (compared to poorest segment): Results are discussed for groups of women who reflect important changes with respect to reference group. Women in this wealthier group show a significant decrease (48.3%) in the odds during Phase I of continuing the same method indicating women not preferring to pursue same method. The subsequent Phases do not reflect any noteworthy increase or decrease and imply this group not taking any measures to change their existing status of using same method.

- Highest Wealth Quintile: The wealthiest group of women reflect a significant decrease of 42.7% in the odds for women in Phase I. The following Phase no significant change in odds is noted followed by a major significant change (125.7%) in the odds relative to poorest segment. The final year results show the group increase the odds by 93.6% of continuing the same method. The overall results imply persistence of sticking to the same method by the wealthiest group of women. Overall, it is noted that the wealthier segments (particularly the highest quintile) show increased consistency in contraceptive use over time, especially in Phases III and IV, where the highest quintile shows notably higher odds of continued use. Wealthier women are less likely to continue with the same method in the first year but show substantially more likelihood to continue in Phases III and IV.

These findings highlight key demographic factors to consider when addressing contraceptive consistency in Punjab, especially around age, rural vs. urban residence, and education level. These insights suggest that residence, parity, education, and wealth status play significant roles in contraceptive use patterns in Punjab, offering valuable information for targeted family planning programs and policies.

Analysis for Intermediate Factors on Continued Use of Same Contraceptive Methods

This section will examine each intermediate independent variable's odds ratio (OR) over four years, interpreting the significance and trends and identifying statistically significant in the multivariate model. This analysis takes the full model (all variables inclusive) and clarify which factors have a substantial influence on the likelihood of using the same contraceptive method in Punjab.

1. Facility Staff told about Side Effects of Current Method to Avoid Pregnancy to women: In Phase I, the odds ratio (0.984) is close to 1, indicating no significant effect on continued use of the same contraceptive method. However, in Phase II, the OR is 1.680*, Phase III is 1.866**, and Phase IV is 1.465 the increasing ORs suggest that, in later years, informing women about side effects is positively associated with consistent contraceptive use. The results show that discussing side effects helps women make more informed, stable choices.

2. Facility Staff told about Other Family Planning Methods: Across all four years, ORs remain close to 1 (Phase I: 0.871, Phase II: 0.957, Phase II: 1.305, and Phase IV: 0.934), indicating little to no effect on continued use of the same contraceptive method. None of these values reach statistical significance.

3. Visited by a Lady Health Worker (LHW) to Discuss Family Planning in the Last 12 Months: Odds Ratios remain close to 1 for all years, suggesting no meaningful association with continued contraceptive use and none is statistically significant in any year.

4. Health Facility Visits in the Last 12 Months: The ORs suggest a non-significant trend towards a slight reduction in continued use for those visiting health facilities, though none show statistical significance.

5. Family Planning Discussion by Health Facility Staff: There's a steady decline in ORs over the four years (Year 1: 0.863, Year 2: 0.782, Year 3: 0.768, and Year 4: 0.483**), with the OR in Phase IV reaching statistical significance. The results suggest that receiving FP guidance from health facility staff may discourage continued use of the same contraceptive method as women becomes aware of more methods and has choice to select.

6. Unintended Pregnancy: In Phase I, the OR is close to 1 and not significant. However, in Phase II, it rises to 1.430*, which is statistically significant. Odds ratios for Phase III and Phase IV don't show statistical significance suggesting that unintended pregnancies have some association with continued contraceptive use, particularly in Phase II.

7. No Desire for Future Births: Women who expressed no desire for future birth, their ORs are consistently above 1, and all are statistically significant (Phase I: 1.802**, Phase II: 1.898**, Phase III: 2.478***, and Phase IV: 2.534***). The results suggest that with every passing year a strong, positive association between no desire for future births and continued use of the same contraceptive method persists.

8. Sterilization (as an Indicator of Permanent FP Choice): The ORs show a very strong positive association with continued contraceptive use across all Phases (Phase I: 2.171***, Phase II: 8.598***, Phase III: 12.77***, Phase IV: 11.70***). This is highly statistically significant, underscoring the stability of sterilization as a method choice indicating that sterilization strongly influences continued use.

9. DISCUSSION

The exercise has been a unique effort based on initially sharing results drawn from national surveys like Pakistan Demographic and Health Surveys and combining with the cross-sectional results of the longitudinal survey from Punjab for four years. A total of 1,411 women were included in the database established for respondents who were interviewed for four years. A comprehensive framework was evolved to outline factors that lead to variability in the three dependent variables of contraceptive dynamics. Based on the exercise undertaken this section presents a brief comparison of cross-sectional and panel data analysis for establishing credibility of longitudinal panel data for this analysis.

The national surveys report contraceptive discontinuation increased from 12 percent in 1990 to 20 percent in 2012-13 which further jumped to 30 percent in 2017-18. These are worrying trends. The huge decline reflected by percent women discontinuing contraception was not addressed by necessary programmatic interventions. Condoms and injectables remain two key modern methods followed by oral pills that are discontinued by users in large proportions while a large percent also discontinue withdrawal method. Method related reasons according to PDHS reports, a decline is noted from 25.7 percent (in 2012-13) to 16.7 percent (in 2017-18) such reasons contribute to higher risks of unplanned pregnancies, induced abortion and unmet need for contraception. The cross-sectional results of the longitudinal study reveals discontinuation of contraceptive use due to method related reasons declined from 41 percent to 30 percent over four years. The series of survey also reveal rapid increase in unintended pregnancies and unmet need for contraception. High unmet need for contraception in Punjab is alarming pointing towards the need to evolve multi-factor response from demand and supply perspective. The Panel Study reveals switching of methods as an important behaviour shift by women to maintain their protection against pregnancies. Results reveal slow and gradual trend of women switching for tubal ligation (even from modern method and traditional method users) reflect inadequate information among women regarding protection from other modern methods.

The Panel data analysis (tracking same women over four years) reveals slow rise in discontinuation rate but a noticeable decline in percent women not using any method over the years. Age, and parity are two key factors that reflect influencing contraceptive dynamics especially discontinuation and continuity of methods. High discontinuation of methods is revealed by younger women (less than 30) and low parity women (less than 3 births). Older women are less likely to switch and prefer to adopt tubal ligation as a long term method. Interaction with LHWs does not make much change in discontinuity or even switching of methods. Better informed women regarding side effects and how to manage does help in improving continuity of methods. Counseling women emerges as the main factor that can influence discontinuity, switching and method continuity for protection against unintended pregnancy and minimize side effects. Programmatic interventions are needed to focus according to the woman’s life stages. Younger women or those with fewer children need focused service attention and different right based messaging and support compared to those who are older or have larger families. Policy measures need to be evolved to align with reproductive autonomy by enabling women to plan births according to their preferences. Promoting SRH rights within this context could help overcome discontinuity and sustain contraceptive use.

Benefits of Using Panel Data in Understanding Contraceptive Dynamics

Longitudinal Panel data gathered in Punjab during 2000 to 2023 offers unique advantages for studying contraceptive use, particularly for dynamics like discontinuation and switching, because it allows tracking the same individuals over time. Some of the benefits include:

> Panel data provides insights into how contraceptive behaviors change within individuals across different life stages or circumstances, such as changes in family size, fertility preferences, or economic situations. Furthermore, by observing the same participants over multiple years, panel data analysis helps pinpoint factors that lead to contraceptive discontinuation or method switching, whether due to side effects, accessibility issues, or shifts in family planning needs. It is important to note that since the study collects data across multiple years, it minimizes the risk of recall bias, common in cross-sectional studies where participants might not accurately remember past behaviors or decisions related to contraceptive use.

Advantages of Longitudinal Panel Analysis over Cross-Sectional Data Analysis

This exercise has shared results using survey reports based on cross-sectional data (including PDHS and PMA Punjab for four years) and also longitudinal panel survey results based on four years following the same women. The Cross-sectional data analysis give a larger picture of status and changes of important indicators. Longitudinal panel analysis has several benefits compared to cross-sectional analysis, particularly for understanding contraceptive dynamics.

Unlike cross-sectional data, which captures a snapshot in time, longitudinal analysis tracks changes over time, making it easier to identify causal relationships. This helps establish whether certain factors (like educational level or visits from health workers) actually influence contraceptive behavior over time. Moreover, panel data reveals trends and patterns in contraceptive use, such as method switching or discontinuing or continuity, which cross-sectional studies cannot detect due to their single-time-point nature. Panel data can control for unobserved individual characteristics that might influence contraceptive choices, like personal attitudes or family influences, providing a clearer picture of true behavioral changes over time. Repeated observations are a tremendously help to program managers and policymakers for better understanding of how interventions, awareness and education programs, or health service improvements affect contraceptive use and can adjust programs accordingly. The dynamism is program inputs and process indicators clearly reflect their changing influence on contraceptive choice and selection.

10. KEY RESULTS BASED ON PANEL DATA AND PROGRAMMATIC RECOMMENDATIONS

This section presents summarizing key results of the comprehensive models for each of the three dependent variables over the four years and point out programmatic recommendations to address the issues.

Key Findings from Regression Analysis on Contraceptive Discontinuation

1. **Background Variables:**
   - **Age:** Contraceptive discontinuation is positively associated with increasing age, indicating that older women are generally more likely to stop using contraception compared to younger women. This trend may be influenced by changing reproductive intentions, health concerns, or accessibility challenges as women age.
   - **Place of Residence:** Rural women consistently experience higher odds of contraceptive discontinuation compared to urban women, reflecting disparities in access to quality services, supplies, and outreach. The urban-rural divide features the weaknesses in the family planning infrastructure and evolve support mechanisms in rural areas to reduce discontinuation rates and enhance method continuity.
   - **Parity (Number of children):** Women with higher parity (3 or more children) consistently showed **lower chances/ likelihood of discontinuation** across all Phases of survey. This regularity in behaviour reflects a stronger commitment to contraception among women with larger families, particularly significant during Phases II–IV.
   - **Educational Attainment:** Higher education consistently associated with **lower likelihood of discontinuation** (ranging from 33.3% to 62%). However, the strength of this effect diminishes slightly over time, possibly reflecting broader socio-economic changes.
2. **Intermediate Variables:**
   - **Service Provider-Related Factors:**
     - **Side Effect Counseling:** Significant and steady reductions in discontinuation (up to 42% in Phase III) when providers informed women about side effects, underlining the importance of informed choice and side effect management.
     - **Discussion of Other FP Methods:** Mixed results: Higher odds of discontinuation in Phase I (67.5%) suggest initial confusion or dissatisfaction due to supply issues but diminishing impact in later Phases.
     - **Health Facility Visits:** No significant effect, highlighting that visits alone are insufficient without quality counseling or follow-up services.
   - **Outreach Efforts:**
     - **LHW Visits:** Significant reduction in discontinuation by Phase IV (28.1% lower odds), emphasizing the importance of consistent community-based outreach.
     - **Facility Staff Communication:** Mixed impact with no consistent trend, suggesting variability in staff quality or communication effectiveness.

- **Fertility Intentions and Events:**
  - **Unintended Pregnancy:** No significant effect on discontinuation, possibly due to complex emotional/social factors.
  - **Future Desire for Births:** Strongly protective against discontinuation, with women desiring no more births consistently showing **markedly lower odds** of stopping contraceptive use (around 60%-70% lower).

Recommendations based on Findings regarding Discontinuation Behaviour

1. Service Delivery and Supply-Side Interventions

*a. **Improve Availability of Methods**:* Findings indicate rural women face higher discontinuation rates, partly due to constrained supply. Deploy real-time monitoring system to track stock levels and reduce stockouts.

- **Recommendation:** Strengthen supply chain management to ensure a consistent stock of contraceptive methods at health facilities, especially in rural areas.

*b. **Enhance Quality of Counseling**:* Side effects awareness reduced discontinuation rates, but gaps in counseling were evident. Integrate counseling skills into regular training sessions, emphasizing the management of side effects and follow-up care. The model highlights specific areas for targeted interventions like improving counseling quality and consistent outreach are key suggestions. Right based education to women about contraceptive side effects must prioritize informed consent by ensuring that information is comprehensive, non-coercive, and unbiased.

- **Recommendation:** Train health providers, especially Lady Health Workers (LHWs), in client-centered counseling techniques to address side effects, alternative methods, and continuity.

*c. **Strengthen Follow-Up Mechanisms**:* Poor follow-up led to unmanaged side effects, which contributed to discontinuation. Use digital health tools for reminders or link users with LHWs for home-based follow-ups. Establish a digital tracking system for contraceptive use dynamics to identify high-dropout areas in real-time.

- **Recommendation:** Develop systems for routine follow-ups, such as SMS reminders or home visits, to check on users' satisfaction and guide to manage side effects.

2. Demand-Side Empowerment and Community Interventions

*a. **Address Misconceptions and Build Awareness**:* Fear of side effects and myths about long-term health impacts were significant discontinuation factors. Partner with community influencers, including religious leaders, to dispel myths and misinformation, and provide accurate information.

- **Recommendation:** Launch mass awareness/media campaigns addressing fears, misconceptions, and health impacts of contraceptives. Initiate innovative community level behavioral interventions (e.g., community myth-busting sessions or peer counseling) to counter fears and myths leading to contraceptive disruption.

b. ***Empower Women in Decision-Making****:* Family and cultural norms strongly influenced contraceptive behaviors, especially among rural women. Use participatory group discussions and couple counseling sessions in rural areas.

- **Recommendation:** Foster women's autonomy and decision-making through community programs that engage both women and their families. FP programs in Punjab need to ensure that community health workers, such as LHWs, interact with women in a manner that respects their privacy, confidentiality, and dignity and without discrimination while delivering family planning messages and services.

c. ***Focus on High-Risk Groups****:* Younger women and those with fewer children had higher discontinuation probabilities. Offer targeted educational programs and incentives for young mothers to continue contraceptive use.

- **Recommendation:** Focused interventions for younger women and those with low parity especially rural women, as they are more likely to discontinue contraceptive use. Younger women or those with fewer children need rights-based messaging and youth-friendly services, while older women with larger families may require tailored support for long-term contraceptive use. This recognizes that each woman's reproductive journey is unique, affirming their right to customized care and accurate information. Programs should target low-parity women (those with fewer than 3 children) who are more likely to discontinue contraceptives and address their unique needs (e.g., managing side effects, improving access, or counseling) could help reduce discontinuation rates.

3. Policy and Systemic Changes

a. ***Incentivize Education and Empowerment****:* Higher education levels were strongly associated with lower discontinuation rates. Integrate family planning education into school curricula and community adult literacy programs.

- **Recommendation:** Collaborate with educational initiatives to enhance women's awareness and access to contraceptive services.

b. ***Expand Rural Outreach****:* Rural women had significantly higher odds of discontinuation compared to urban residents. Deploy mobile service units and establish satellite clinics in underserved rural areas.

- **Recommendation:** Increase investments in rural health infrastructure and workforce to reduce geographic and logistical barriers.

c. ***Integrate Contraceptive Services with Maternal Health****:* Women's reproductive intentions and life-stage transitions influenced discontinuation patterns. Mandate FP counseling as part of routine maternal health services and incentivize providers to ensure uptake.

- **Recommendation:** Provide contraceptive counseling and supplies during antenatal and postnatal visits. Since the desire for future births is a consistent determinant, policy measures need to align with reproductive autonomy by enabling women to plan births according to their preferences. Promoting SRH rights within this context could help overcome discontinuity and sustain contraceptive use. This involves enabling women to plan and space their births based on their choices, aspirations, and health needs. Policymakers in Punjab should leverage the findings to apply approaches that uphold equality and reproductive rights. This means creating avenues for women to receive the right information, comprehensive services, and respectful care in their communities.

4. Monitoring and Research

a. ***Develop Data-Driven Strategies****:* Longitudinal panel data revealed nuanced dynamics of contraceptive behaviors over time. Use longitudinal data tools to track behaviors and refine program strategies.

- **Recommendation:** Strengthen data collection and analysis for identifying trends in discontinuation and method switching.

b. ***Evaluate Provider Performance****:* Provider bias and counseling quality were recurring issues linked to discontinuation. Regularly monitor provider interactions and use client feedback for improvements.

- **Recommendation:** Establish key performance indicators (KPIs) for family planning providers, focusing on counseling quality and continuity of use. Moreover, measurable indicators to track the impact of suggested interventions (e.g., reduction in unmet need and discontinuation rates by two percentage annually for 5 years).

c. ***Investigate Emerging Trends****:* Social and cultural influences were significant in shaping behaviors. Include qualitative research components to explore deeper insights.

- **Recommendation:** Conduct further studies on the impact of sociocultural factors, such as peer pressure and gender dynamics, on contraceptive use.

Key Insights Influencing Contraceptive Switching Behavior and Programmatic Recommendations

Background Factors*:*

- **Age**: Older women generally exhibit slightly lower odds of switching contraceptive methods compared to younger women. This finding reflects that older women may be more settled in their contraceptive choices due to established family planning needs.
- **Place of Residence**: Rural women show higher probabilities of switching methods compared to urban women. This suggests that rural women may face challenges with consistent access to contraceptives, requiring them to switch methods more frequently.
- **Parity**: Women with 3-4 children are more likely to switching methods compared to those with fewer children. The trend is even more pronounced for women with 5 or more children, likely due to their prioritization of preventing unintended pregnancies, including permanent methods like sterilization.
- **Educational Attainment**: Education plays a significant role in method switching behavior. Women with secondary and higher education are more proactive in switching methods, possibly reflecting better awareness and autonomy in family planning decisions.
- **Wealth Quintile**: Wealthier women (fourth quintile) show a higher likelihood of switching methods in some years, but the trend is not consistent. The wealthiest women (fifth quintile) often demonstrate a lower tendency to switch, indicating stability in contraceptive use among this segment.

Intermediate Factors:

- **Side Effects Counseling**: No significant effect was found, suggesting that information on side effects does not strongly influence the decision to switch contraceptives.
- **Information on Other FP Methods**: The lack of consistent direction and significance indicates that discussing alternative methods did not significantly drive method switching.
- **LHW Visits**: Visits by Lady Health Workers significantly increased the likelihood of switching methods in Year 1, but the effect diminished in later years, indicating the importance of consistent engagement.
- **Health Facility Visits**: No substantial impact on switching behavior was observed, highlighting gaps in service delivery or ineffective counseling during these visits.
- **Health Facility Staff Discussions**: Conversations with health facility staff showed a progressively stronger impact, with women becoming 2.4 times more likely to switch methods in Year 4. This underscores the growing importance of facility-based counseling.
- **Unintended Pregnancy**: Inconsistent and insignificant effects indicate that unintended pregnancies did not play a major role in driving method switching.
- **No Desire for Future Births**: Higher odds of switching were observed but lacked statistical significance, suggesting a nuanced relationship between birth intentions and switching behavior.
- **Sterilization**: Women who switched to sterilization were significantly more likely to adopt permanent methods early on. Post-sterilization, switching became almost non-existent, reflecting the permanence of this choice.

The overall results of this segment suggests that age, parity, women education, household wealth status, and place of residence are important predictors of contraceptive switching. Program interventions to emphasize client counseling, equity in service delivery, smooth contraceptive supplies, and customized outreach at doorsteps to address the diverse needs of women who switched methods. Incorporating these insights into program development can help achieve sustainable and equitable family planning outcomes in the long term.

Programmatic Recommendations for Addressing Contraceptive Method Switching Behaviour:

- **Enhance Access and Permanence**: In order to provide women with timely and convenient access to contraceptive counseling and methods, integrate family planning services within maternal health, postnatal care, and immunization programs. Health Departments needs to establish a postpartum family planning (PPFP) initiative, and equip primary healthcare facilities with a wide range of contraceptives and trained providers. Ensure consistent availability of contraceptives in rural areas to reduce the need for frequent switching. Therefore, strengthening the supply chain to address access gaps, particularly for rural and high-parity women needs urgent attention. All stakeholders in Punjab should prioritize educational and awareness interventions and ensure that quality contraceptive services are equally accessible to women without discrimination from all socioeconomic backgrounds.
- **Strengthening FP/RH Systems**: Punjab FP stakeholders need to seriously consider evolving an efficient and intensified contraceptive procurement and supplies system,

service outreach and focused and targeted communication to improve contraceptive stability and satisfaction in these areas. Punjab needs to strengthen community-level outreach and services not only respects women's rights to health information but also builds an enabling environment where all women, regardless of their location, have access to consistent, supportive FP services. Furthermore, to prevent gaps in use or return to less effective methods, urgently needed is to develop mechanisms to monitor contraceptive use and address reasons for discontinuation or dissatisfaction. Implement mobile-based reminders and follow-ups for women. And use digital health platforms to track and address reasons for discontinuation.

- **Focused Counseling**: Stakeholders need to ensure that all contraceptive users receive comprehensive, unbiased counseling to understand their options, including benefits, side effects, and effectiveness of different methods. Develop personalized counseling strategies for older women to encourage method satisfaction and reduce unnecessary switching. This element requires training of health facility staff to provide comprehensive information on all contraceptive options, emphasizing method suitability for individual needs. Developing communication tools that guide women through method choices, addressing myths and misconceptions are essential measures.
- **Promote Multi-Sectoral Approaches and Educational Interventions**: Urgently needed is to tackle structural barriers (education, employment) influencing contraceptive use. Integrate family planning goals into education, labor, and women's empowerment policies. Collaborate with education departments to include family planning in school curricula. And also strengthen vocational and economic opportunities for women, empowering them to make informed decisions. Promote awareness campaigns focusing on women with lower education levels to increase understanding of available methods and improve decision-making/ behaviours.
- **Outreach Programs**: LHWs though expected to be a catalyst of change but not reflected in the panel exercise implies programmatic attention to shift their time use on counseling and service delivery that meets women's reproductive health needs. Efforts should be made to strengthen their outreach and training, to maintain consistent impacts on contraceptive behaviors. Reinforce the LHWs' role by providing regular refresher training and resources to maintain their impact on method switching behavior. In this regarding, the scope of facility-based outreach needs to be expanded to address gaps in method continuity.
- **Customized Counseling to Life Stage and Family Size:** Develop specialized programs for women with larger families, emphasizing the importance of LARC and permanent methods like sterilization, where applicable. In order to address the consistently low uptake of LARCs observed across Phases, Programmes need to increase awareness about the advantages of LARCs as a reliable, reversible option. Two steps need to be taken: (i) Subsidize LARCs to make them affordable and accessible; and (ii) Launch campaigns highlighting LARCs as a solution for women seeking long-term but non-permanent contraception. Women with more children are more likely to switch, indicating a need for personalized family planning counseling and support for multiparous women to sustain consistent contraceptive use or switch methods based on evolving needs.
- **Engage Men and Communities in FP Conversations**: To reduce socio-cultural barriers that limit women's contraceptive choices and transitions, design male-involvement

programs and community dialogues to shift traditional gender norms and foster shared decision-making. Leverage community and religious leaders to promote modern contraceptive use; and develop male-targeted campaigns addressing misconceptions about contraceptives. Address husband and family influence on contraceptive choices through inclusive communication campaigns.

- **Promote Informed Decisions**: Fully integrate the importance of discussing side effects and alternative methods in counseling sessions, even though current evidence suggests limited impact, to enhance overall service quality.
- **Monitoring and Follow-Up:** Introduce systematic follow-ups (physical or electronic contacts) for women who switch methods to ensure satisfaction and address any emerging concerns promptly.

By focusing on reinforcing the outreach programs and improving the quality of counseling and staff engagement, family planning programs can effectively address the key factors influencing contraceptive switching. By adopting rights-based approach, policymakers and programme managers in Punjab can create a more inclusive and responsive family planning environment that supports every woman's right to make informed and empowered reproductive choices.

Key Insights Influencing Continued Use of Same Contraceptive Method

Background Factors:

- **Age**: In Phase I, each additional year of age is linked with a 2% decrease in the likelihood of continued use of the same contraceptive method. However, in later Phases, age does not significantly affect the odds of continued method use, suggesting minimal influence of age on contraceptive consistency over time.
- **Place of Residence**: Rural women had higher odds of continuing the same method in Phase I compared to urban women. However, in Phases II and III, rural women showed significantly lower odds of continued use, possibly due to supply constraints in rural areas. The pattern suggests a reduced consistency in contraceptive use in rural areas, with urban women generally exhibiting more stable use.
- **Parity**: Women with 3-4 children showed a lower likelihood of continuing the same method than in Phase I, possibly due to seeking alternative methods to prevent unintended pregnancies. High parity women (5+ children) showed a significant increase in method continuation in Phase III, indicating a preference for permanent methods such as tubal ligation. This group exhibited fluctuating patterns, suggesting changes in method consistency over time.
- **Educational Attainment**: Women with primary education showed a higher likelihood of continuing the same method in Phase I but experienced a decrease in odds in Phase II. For women with higher education, odds of continued use increased in Phase II, then fluctuated in subsequent Phases. Secondary education showed a negative trend in Phases III and IV, suggesting that women with secondary education might be more likely to switch methods compared to others.
- **Wealth Quintiles**: Wealthier women, particularly those in the highest wealth quintile, showed a lower likelihood of continuing the same method in Phase I but exhibited a

significant increase in Phase III and IV, indicating greater consistency in method use in later Phases.

Intermediate Factors:

- **Side Effects Counseling**: Over time, being informed about side effects has a positive association with continued use, especially in later Phases, indicating that counseling on side effects helps reinforce contraceptive regularity.
- **Discussion on Other Methods**: The results show little to no effect, suggesting that simply providing information about other methods does not significantly affect method continuation.
- **Family Planning Discussions by Health Facility Staff**: There is a negative trend over time, especially in later Phases, indicating that discussions with health facility staff about family planning might encourage women to consider switching methods.
- **LHW Visits**: No significant effect was found, implying that visits from Lady Health Workers did not substantially influence continued contraceptive use.
- **Unintended Pregnancy**: In Phase II, unintended pregnancies were positively associated with continued use, but this effect was not significant in later Phases.
- **Desire for Future Births**: Strong positive associations with continued method use, particularly for women with no desire for future births, suggesting that women aiming to avoid future pregnancies are more likely to remain consistent with their contraceptive method behaviour.
- **Sterilization**: Sterilization showed a very strong positive association with continued use across all Phases, underscoring its stability as a permanent contraceptive choice.

Key Influencers Factors: Side effect counseling and desire for no more children are influential in continued contraceptive use, suggesting the importance of clear, goal-aligned counseling. Sterilization greatly stabilizes method use, implying strong adherence to permanent and preferred choices.

Less Influential Factors: Information on alternative methods, LHW visits, and health facility visits show little association with continued use of the same method, possibly indicating that consistency may rely more on satisfaction and fit with current contraceptive methods than exposure to alternatives or LHW visit frequency.

Recommendations Based on Findings regarding Continued Use of Same Method

In view of interesting results related to various background and intermediate factors in Punjab, a breakdown of the suggestions for program improvement, along with specific action points for strengthening family planning (FP) program delivery to **improve contraceptive continuity** are shared below:

- **Targeted Interventions for Rural Areas**: Given the observed rural-urban differences, efforts are needed to address supply constraints in rural areas and provide consistent access to contraceptive methods. Family Planning stakeholders should focus on improving logistics, supply chains, and service availability to warrant consistent contraceptive use in rural populations.

- **Improving counseling frameworks** to integrate reproductive goal discussions in routine counseling sessions to ensure that contraceptive choices align with each woman's life stage and plans. Following best practices, there is a need to introduce tools, such as reproductive intention checklists, into consultations to facilitate discussions around short- and long-term reproductive goals. Moreover, work towards policies that prioritize and support contraceptive methods suited to women who have completed their families, such as long-acting reversible contraceptives (LARCs) and sterilization. Focused counseling should be provided to women with higher parity, highlighting the benefits and permanency of methods such as tubal ligation to encourage method continuation.
- **Strengthen Informed Choice Counseling for Permanent Methods**: Develop clear counseling pathways to help clients make informed decisions on sterilization, ensuring they understand the permanence and benefits of the procedure. Publicly communicate the availability and benefits of sterilization, especially in communities with higher fertility rates or among women with high parity, to build understanding and acceptance of the method. Furthermore, follow up with sterilized women to ensure they feel supported, address any concerns post-procedure, and confirm satisfaction.
- **Standardize FP Counseling Approaches**: Develop uniform messaging frameworks that health facility staff can follow, ensuring consistency and accuracy in FP information. Train facility staff on how to provide personalized, respectful counseling that addresses each woman's individual needs, reinforcing satisfaction with chosen methods rather than emphasizing alternatives unless necessary. Finally, it is essential to implement feedback systems to gauge the effectiveness of facility-based counseling and adjust approaches based on client satisfaction and continuation rates.
- **Enhance Counseling on Side Effects**: Given the positive relationship between counseling on side effects and continued method use, continuous training for health workers should emphasize discussing side effects and misconceptions, and benefits of hormonal methods with women in detail. This will help women feel better informed and confident in their method choice, potentially improving contraceptive continuation rates. Enhance provider training to equip healthcare providers with skills to deliver unbiased, high-quality counseling and follow-up care.
- **Quality over Quantity in Interactions of LHW and Facility staff**: Shift to prioritize the quality of each consultation needs to be encouraged for health workers, ensuring that each interaction is meaningful and supports women in their FP journey. There is a need to develop a system where only women who need additional assistance (e.g., due to side effects or changing reproductive goals) receive more frequent follow-up visits. Such a focused approach can reduce redundant interactions and improve the overall quality of support by LHWs and facility staff towards family planning.
- **Monitor Health Facility Interactions**: The negative trend associated with family planning discussions by health facility staff suggests that women may be encouraged to switch methods after these conversations. Programs should focus on counseling women to make informed, consistent choices, rather than simply providing information on alternatives.
- **Promote Education and Awareness**: As educational attainment is linked to continued use, Government should prioritize education attainment, initially primary and then higher education levels. Making women aware about the long-term benefits of using the same

method would help foster better adherence, especially among women with secondary education, who showed a tendency to switch methods in later Phases.

- **Strengthen Post-Sterilization Support**: As sterilization shows strong persistence, post-procedure support should be enhanced, ensuring that women who choose permanent methods are supported in maintaining consistent use. This can include follow-up services and ensuring satisfaction with the choice.

By addressing these factors, family planning programs can enhance the consistency and continuity of contraceptive use, and better support women's reproductive rights and health needs across different demographic groups.

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