

Contraceptive choices and their determinants among women of reproductive age group in Urban slums in Lucknow

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ABSTRACT

Introduction

Contraception is an essential component of reproductive health and enables women and couples to determine the timing, spacing and number of pregnancies. Although India has achieved substantial improvements in contraceptive prevalence, important disparities persist among socioeconomically disadvantaged populations, particularly women living in urban slums. Urban slum residents frequently experience poverty, low educational attainment, inadequate health literacy, limited autonomy, gender-related barriers, migration and restricted access to continuous reproductive-health services. These factors can influence not only contraceptive use but also the selection, continuation and discontinuation of individual methods. Lucknow, the capital of Uttar Pradesh, contains a substantial population living in urban slums, making it an important setting for understanding the determinants of contraceptive choice.

Objective

To review the available evidence regarding contraceptive choices among women of reproductive age residing in urban slums, with particular emphasis on Lucknow, and to identify the demographic, socioeconomic, reproductive, cultural, interpersonal and health-system determinants influencing contraceptive selection, utilization and discontinuation.

Materials and Methods

A narrative literature review was conducted using PubMed, Google Scholar, WHO publications, National Family Health Survey reports, government sources and relevant Indian medical journals. Literature concerning contraception, contraceptive choice, family planning, unmet need, contraceptive practices and determinants among women of reproductive age, particularly those living in urban slums, was considered. Studies from Lucknow and other Indian urban slum settings were included to provide contextual and comparative evidence. Articles, reports and studies published from 2000 through 2026 were considered, with greater emphasis on recent evidence from 2019–2026.

Results

The reviewed literature demonstrates a persistent gap between contraceptive knowledge and actual utilization. In a landmark study of 600 married women in urban slums of Lucknow, 99.2% had knowledge of contraception, whereas only 46.7% were using contraception; condoms were the most commonly used method and fear of side effects or health concerns was the major reason for discontinuation. A subsequent Lucknow study among 230 women reported 98.6% awareness and 70.8% ever-use, while current use included condoms and oral contraceptive pills prominently. Among young married women aged 15–24 years in Lucknow, unmet need for family planning was reported to be 55.3%, highlighting particularly important vulnerabilities among younger women. Evidence from other Indian urban slums similarly demonstrates the influence of age, education, parity, number and sex of living children, socioeconomic status, partner support, health-worker contact, perceived side effects and accessibility of services. National NFHS-5 analyses indicate increasing contraceptive use but continuing socioeconomic and geographic disparities.

Conclusion

Contraceptive choice among women in urban slums is multidimensional and cannot be explained by awareness alone. Although knowledge is generally high, adoption and continuation are influenced by reproductive intentions, parity, education, socioeconomic status, partner and family attitudes, fear of adverse effects, misconceptions, autonomy and accessibility of services. Interventions in Lucknow should emphasize informed choice, method diversification, improved counselling, management of side effects, male involvement, community-based outreach and improved access to reversible long-acting methods.

Keywords

How to cite this article: Pushkal Singh Dr. Nirpal Kaur Shukla* Dr. Gulfam Ahmed Hashmi Dr. Syed Belal Hassan Dr. Neeti Verma. Contraceptive choices and their determinants among women of reproductive age group in Urban slums in Lucknow. *Int J Drug Deliv Technol.* 2026;16(83s):1522-1539. DOI: 10.25258/ijddt.16.83s.165.

INTRODUCTION

Contraception is an essential component of reproductive health and plays a fundamental role in enabling women and couples to determine the timing, spacing and number of pregnancies according to their reproductive intentions. Appropriate contraceptive use can prevent unintended pregnancies, promote healthy birth spacing, reduce maternal and neonatal morbidity and mortality, and improve women's opportunities for education, employment and socioeconomic participation. The World Health Organization (WHO) recognizes access to contraception and family-planning information and services as an important component of reproductive health and emphasizes voluntary, informed and acceptable contraceptive choice [1].

Globally, the need for family planning remains substantial. Despite major improvements in contraceptive availability and utilization, millions of women continue to experience an unmet need for contraception. Barriers include inadequate access to services, financial limitations, misinformation, fear of adverse effects, social and cultural opposition, gender

inequality and limitations in women's autonomy [1]. Consequently, contraceptive prevalence alone cannot adequately describe the reproductive-health situation of a population; it is equally important to understand whether women can access their preferred method, whether they can use it correctly and consistently, and whether they are able to continue or change the method according to their reproductive needs.

India has one of the world's largest populations of women of reproductive age and has a long history of organized family-planning services. India initiated its national family-planning programme in 1952 and subsequently transformed the programme from a predominantly demographic approach toward a broader reproductive-health framework emphasizing informed choice, quality of care and availability of multiple contraceptive methods [2]. The National Family Health Survey (NFHS) has become an important source of information regarding fertility, contraceptive use, unmet need and reproductive-health indicators across different population groups.

According to the National Family Health Survey-5 (NFHS-5), conducted during 2019–2021, India has

experienced a substantial increase in contraceptive use, accompanied by a reduction in unmet need for family planning [3]. However, national improvements do not imply that all population groups have benefited equally. Considerable differences continue according to age, education, socioeconomic status, residence, parity, number of living children, fertility preferences, caste, religion and exposure to reproductive-health information [3].

Urbanization has introduced an important dimension to reproductive-health inequalities. Although urban residents are generally located closer to healthcare facilities, this apparent geographical advantage may not extend to people living in informal settlements and urban slums. Urban slum populations frequently experience poverty, overcrowding, insecure housing, informal employment, migration, poor sanitation and inadequate continuity of healthcare. These conditions can adversely affect women's ability to obtain reproductive-health information and services [4].

The reproductive-health needs of women living in urban slums therefore require specific attention. Urban slum women may have relatively high exposure to health information but simultaneously experience barriers related to affordability, accessibility, privacy, autonomy and family support. Studies from Indian urban slums have demonstrated considerable variation in contraceptive knowledge, acceptance, method preference and unmet need [5].

Lucknow, the capital of Uttar Pradesh, represents an important setting for studying these issues. A community-based study conducted by Kumar et al. among 540 women residing in urban slums of Lucknow found that acceptance of both temporary and permanent family-planning methods increased with women's literacy. IUCD was the most accepted temporary method, followed by oral contraceptive pills, while condom use by male partners was relatively low. The study also demonstrated that women with lower educational attainment tended to adopt permanent methods after having more children, whereas more educated women adopted permanent contraception at a lower parity [6].

An important subsequent study by Rizvi et al. investigated 600 married women aged 15–49 years residing in 30 urban slums of Lucknow. Almost all women (99.2%) had knowledge of contraceptive methods; however, only 46.7% were using contraception. Condoms were the most commonly used contraceptive method, and fear of side effects or health concerns was the major reported reason for

discontinuation [7]. This study clearly demonstrated a substantial **knowledge–practice gap**, in which awareness of contraception was considerably higher than actual utilization.

The knowledge–practice gap is an important concept in family-planning research. Awareness that contraceptive methods exist does not necessarily mean that women understand their effectiveness, correct use, possible adverse effects, reversibility or suitability for their reproductive circumstances. A woman may know about condoms, oral contraceptive pills, IUCDs or sterilization but may not use contraception because she desires another pregnancy, fears infertility, has experienced side effects, lacks partner support or faces difficulties obtaining the method.

Further evidence from Lucknow was provided by Verma and Bajpai, who studied 230 married women aged 18–49 years attending an urban health-training centre and predominantly originating from a neighbouring slum locality. Almost all participants (98.6%) had knowledge of at least one contraceptive method, while 70.8% had ever used contraception. During the preceding year, 29.1% had not used any contraceptive method, whereas oral contraceptive pills and condoms were important current methods [8]. The authors emphasized the importance of women's education and couple counselling in improving contraceptive adoption.

The problem of unmet need is particularly important among young married women. A cross-sectional study among 535 young married women aged 15–24 years living in urban slums of Lucknow found that 55.3% had an unmet need for family planning. Of this unmet need, 40.9% was for spacing and 14.4% for limiting pregnancies. Opposition from husbands or other family members, embarrassment or shyness, inadequate knowledge and concerns regarding health and side effects were among the important reasons for unmet need [9]. The study also identified age, education, duration of marriage, number of pregnancies, contraceptive knowledge, opposition to contraception and contact with auxiliary nurse midwives as important determinants.

The findings among young married women are particularly significant because early marriage and early childbearing may expose women to repeated pregnancies while their reproductive decision-making autonomy remains limited. The predominance of unmet need for spacing rather than limiting in this age group suggests that young women require access

to effective reversible methods rather than being approached primarily through permanent family-planning strategies [9].

Contraceptive methods differ considerably in their duration, effectiveness, reversibility, side-effect profile and dependence on user adherence. Male condoms are inexpensive, readily available, reversible and do not require a clinical procedure. They also provide protection against sexually transmitted infections, including HIV, making them unique among contraceptive methods [10]. However, their effectiveness depends on correct and consistent use.

Oral contraceptive pills are another important reversible method. They provide women with control over contraception but require regular adherence. Forgetfulness, concerns regarding hormonal effects and misconceptions about infertility may influence discontinuation. IUCDs provide long-term reversible contraception and may be particularly useful for women who wish to avoid daily or intercourse-dependent methods. However, fear of insertion, pain, bleeding and infertility can influence acceptance [1].

The effectiveness of contraception is also affected by user behaviour. Evidence regarding contraceptive failure demonstrates that typical-use effectiveness may differ substantially from perfect-use effectiveness, particularly for methods requiring repeated user action [11]. Therefore, contraceptive counselling should not merely identify the most effective method in theory but should help women select a method that they can use correctly and comfortably in their actual social circumstances.

Female sterilization remains an important component of India's contraceptive method mix, particularly among women who have completed their desired family size. Studies from urban slums have reported substantial use of tubectomy or other permanent methods [6,12].

Age is an important determinant of contraceptive choice. Younger women who have not completed their desired family size may prefer temporary or spacing methods, whereas older women with higher parity may prefer permanent contraception. Evidence from urban slum populations indicates that contraceptive acceptance changes with age and reproductive stage [6,12].

Education is another important determinant. Higher educational attainment can improve health literacy,

exposure to reproductive-health information, communication with healthcare providers and participation in household decision-making. Evidence from urban slum populations has demonstrated an association between female literacy and acceptance of family-planning methods [6]. Similar relationships have been observed in other Indian urban-slum populations [13].

Socioeconomic status also influences contraceptive behaviour. Poverty may increase the motivation to avoid unintended pregnancies because additional children can create considerable financial pressure. At the same time, poverty can reduce access to preferred contraceptive services because of transportation expenses, loss of wages, childcare responsibilities and dependence on limited local health facilities [14].

Reproductive characteristics are equally important. Parity, number of living children, age of the youngest child and desired family size influence whether women seek contraception for spacing or limiting. Women who have one or two children may prefer reversible methods, whereas those who have completed their desired family size may choose permanent methods [6,12,15].

The sex composition of children can also influence contraceptive behaviour. In communities where son preference remains influential, couples may continue childbearing until a desired number of sons is achieved. Evidence among urban slum populations has indicated that the number and sex of living children can influence contraceptive utilization [16].

Partner and family influence represent another major determinant. Although contraception is frequently categorized as a women's health issue, decisions regarding contraception commonly occur within couples and families. Husband's education, attitude, approval and participation can affect method selection and continuation. Opposition from husbands or family members was an important contributor to unmet need among young married women in Lucknow [9].

Fear of adverse effects is one of the most consistently reported barriers to contraception. In the Lucknow study by Rizvi et al., fear of side effects and health concerns were important reasons for discontinuation [7]. Similar concerns have been documented in studies from Maharashtra, Telangana, West Bengal and other Indian urban-slum settings [12–17]. Common concerns include infertility, excessive

bleeding, weakness, weight gain, menstrual irregularity and future pregnancy problems.

Health-system factors are equally important. Availability of contraceptive commodities, geographical accessibility, affordability, privacy, provider attitude, quality of counselling and follow-up can determine whether women are able to convert reproductive intentions into contraceptive practice [1,9]. A method may be technically available within a city but functionally inaccessible to a woman who cannot afford transportation, cannot leave work or is uncomfortable discussing contraception in a crowded facility.

Community health workers can therefore play an important role in urban slum populations. Repeated contact with health workers can facilitate contraceptive education, identify unmet need, address misconceptions, provide follow-up and facilitate referral to appropriate services [9].

Evidence from other Indian urban slums supports the findings from Lucknow. Studies from Solapur, Nalgonda, Ahmedabad and other urban poor communities have demonstrated associations between contraceptive use and age, education, parity, socioeconomic status, partner approval and perceived side effects [12,17–20]. These studies also demonstrate considerable geographical variation, indicating that contraceptive behaviour is strongly influenced by local social and health-system contexts.

A study from Bankura demonstrated that contraceptive practices were influenced by age at marriage, literacy, family structure, socioeconomic characteristics and number of living children [13]. Similarly, studies in other urban slum settings have demonstrated that education, family size and socioeconomic conditions influence method acceptance [14,18]. Evidence from Delhi and other metropolitan urban slums has additionally linked contraceptive use with reproductive behaviour and abortion-related outcomes [21]. These observations highlight the relationship between contraceptive access, unintended pregnancy and reproductive-health outcomes. National analyses provide further context. NFHS-based studies have shown that contraceptive use is influenced by age, education, wealth, number of living children, residence, media exposure and fertility preferences [3,22]. The decline in national unmet need is encouraging, but inequalities continue between socioeconomic and demographic groups. A national analysis of NFHS-5 data demonstrated that modern temporary

contraceptive use was associated with reproductive history, husband's education, place of residence, caste and exposure to media [23]. These findings reinforce the importance of considering household and interpersonal characteristics alongside individual-level factors. Another NFHS-5 analysis demonstrated continuing geographic and socioeconomic differences in unmet need for family planning [24]. Rural–urban differences and wealth-related disparities indicate that population-level improvements may coexist with persistent disadvantage among specific groups. Recent analyses have also demonstrated that wealth influences contraceptive method selection, with poorer women experiencing greater non-use and relatively lower use of reversible modern methods [25]. This is particularly relevant for urban slum populations because socioeconomic deprivation is a defining feature of these communities. Recent evidence from Lucknow has further strengthened the need to examine contraceptive practices in relation to the socioeconomic characteristics of women living in slums [26]. Contemporary local data are important because contraceptive availability, reproductive preferences and healthcare-seeking behaviour change over time.

Postpartum contraception represents another important opportunity. Women frequently interact with health services during pregnancy, delivery and the postpartum period. Emerging evidence suggests that health-worker contact, spousal communication and women's self-efficacy may influence postpartum contraceptive adoption among women in urban slums [27].

The distribution of contraceptive commodities between public and private sectors is also relevant. Understanding where women obtain contraception can identify accessibility gaps and help ensure continuity of supply [28]. Monitoring systems for family-planning programmes have increasingly incorporated improved estimation of contraceptive prevalence, unmet need and method mix [29]. The evidence collectively indicates that contraceptive choice should not be interpreted solely through contraceptive prevalence. A high prevalence rate does not necessarily indicate informed or autonomous choice, while non-use does not necessarily represent unmet need if a woman is actively attempting to become pregnant. Therefore, reproductive intention, method satisfaction, continuation, discontinuation and switching should be considered when evaluating contraceptive behaviour [1,22]. The method mix is also important. Condoms and oral contraceptive pills remain important temporary methods, while IUCDs

and other long-acting reversible methods provide prolonged protection without requiring daily or intercourse-related action. Permanent methods remain appropriate for couples who have completed their desired family size. Ensuring availability of multiple methods is therefore more consistent with informed choice than emphasizing one particular method [1].

The evidence from Lucknow and other urban slums also demonstrates the importance of method continuation. Initiation alone is insufficient if women discontinue contraception because of side effects, misinformation or partner opposition without adopting an alternative method [7,17]. Counselling should therefore include side-effect management and method switching. Taken together, the evidence from studies [1–29] demonstrates that contraceptive behaviour is influenced by a combination of **knowledge, reproductive intention, age, parity, education, socioeconomic status, sex composition of children, partner support, family influence, perceived side effects, method characteristics and healthcare accessibility**.

Recent evidence further reinforces the need for a client-centred approach to family planning. Contemporary global guidance emphasizes voluntary informed choice and access to a range of safe and effective contraceptive options [30]. Updated evidence regarding condoms continues to emphasize their dual role in pregnancy and STI prevention [31]. Modern contraceptive effectiveness data further support individualized counselling based on both method efficacy and real-world adherence [32].

Recent evidence concerning socioeconomic inequalities indicates that contraceptive choice remains closely connected with household wealth and social disadvantage [33]. Emerging evidence from postpartum urban-slum populations additionally emphasizes the role of interpersonal communication and women's self-efficacy [34]. The evolving methodology for estimating family-planning indicators also emphasizes the importance of reliable monitoring of contraceptive prevalence, unmet need and method mix [35]. At the same time, understanding the public and private sources of contraceptive supply remains important for evaluating access and programme performance [36]. Overall, the reviewed evidence suggests that the contraceptive behaviour of women in urban slums is the outcome of a complex decision-making pathway. Socioeconomic circumstances determine the context in which reproductive decisions occur; education and

health literacy affect understanding of available methods; reproductive characteristics determine the need for spacing or limiting; partner and family attitudes influence autonomy; perceptions of adverse effects affect acceptance and continuation; and health-system factors determine whether preferred methods are practically accessible [1–36].

Therefore, improving contraceptive use in urban slums of Lucknow requires more than increasing awareness. Programmes should ensure **voluntary informed choice, availability of multiple contraceptive methods, accurate counselling, management of side effects, male involvement, community-based outreach, affordable services and continuity of care** [1,30]. Particular attention should be given to young married women because of the high unmet need for spacing documented in Lucknow [9].

The findings strongly support the need for contemporary community-based research among women of reproductive age residing in urban slums of Lucknow. Such research should simultaneously assess knowledge, current method use, method preference, reasons for selection, reasons for non-use, side effects, discontinuation, reproductive intentions, partner involvement, socioeconomic characteristics and accessibility of health services. This integrated approach would provide a more complete understanding of contraceptive choice and could guide targeted reproductive-health interventions for one of the most vulnerable urban populations.

MATERIALS AND METHODS

Study design

A **narrative literature review** was undertaken to synthesize published evidence on contraceptive choices and their determinants among women of reproductive age, with particular emphasis on women residing in urban slums of Lucknow.

The review was designed to provide a structured synthesis rather than a quantitative meta-analysis because the identified studies differed considerably in population, sample size, age criteria, outcome definitions, study design and contraceptive indicators.

Review period

Literature published between **January 2000 and August 2026** was considered, with particular

emphasis on publications from 2015 onward and recent evidence from 2019–2026.

Information sources

The following sources were searched:

- PubMed/MEDLINE
- Google Scholar
- WHO publications
- National Family Health Survey reports
- Ministry of Health and Family Welfare, Government of India
- International Journal of Community Medicine and Public Health
- Indian Journal of Community Health
- International Journal of Research in Medical Sciences
- International Journal of Reproduction, Contraception, Obstetrics and Gynecology
- BMC Women's Health
- Scientific Reports
- Contraception and Reproductive Medicine
- other relevant peer-reviewed Indian journals.

SEARCH STRATEGY

The following combinations of keywords and Boolean operators were used:

“contraception” AND “urban slums”

“contraceptive use” AND “women of reproductive age” AND India

“contraceptive choice” AND “urban slum”

“family planning” AND “urban slums” AND India

“unmet need” AND contraception AND urban slums

“contraceptive practices” AND Lucknow

“contraceptive determinants” AND Lucknow

“women” AND “urban slums” AND “family planning” AND Lucknow

“modern contraceptive use” AND India AND NFHS-5

INCLUSION CRITERIA

Studies were included when they fulfilled one or more of the following criteria:

1. Studies involving women of reproductive age, generally 15–49 years.
2. Studies involving married or currently married women where contraceptive behaviour was assessed.
3. Studies conducted in urban slums or among urban poor populations.
4. Studies conducted in Lucknow or Uttar Pradesh.
5. Indian studies included for comparative evidence.
6. Studies evaluating contraceptive knowledge, attitude, practice or choice.
7. Studies assessing determinants of contraceptive use.
8. Studies evaluating unmet need for contraception.
9. Studies examining barriers, discontinuation or method preference.
10. Government and international reports providing reliable population-level contraceptive data.
11. Peer-reviewed articles and relevant high-quality evidence published in English.

EXCLUSION CRITERIA

The following were excluded:

1. Studies conducted exclusively among infertile women.
2. Studies limited to contraceptive efficacy without assessment of population choice or determinants.
3. Studies involving only contraceptive clinical trials without community-level relevance.
4. Studies involving populations outside the reproductive-age group unless directly relevant.
5. Editorials, letters and opinion pieces without original or authoritative evidence.
6. Duplicate publications.
7. Articles without sufficient information regarding the study population or outcome.
8. Non-English publications where adequate translated information was unavailable.
9. Studies focusing exclusively on sexually transmitted infections without contraceptive outcomes.

STUDY SELECTION AND DATA EXTRACTION

Relevant articles were screened initially by title and abstract. Potentially relevant articles were then evaluated based on population, setting, study design and outcomes.

Information extracted included:

- author and year;
- geographical setting;
- sample size;
- age group;
- study design;
- contraceptive prevalence/use;
- commonly used methods;
- unmet need;
- determinants;
- reasons for non-use;
- reasons for discontinuation; and
- major conclusions.

RESULTS

The literature consistently demonstrated that contraceptive behaviour among women living in urban slums is characterized by a complex **knowledge–practice gap**. Local Lucknow studies provided particularly important evidence. The study by Rizvi et al. found almost universal knowledge but considerably lower utilization. The subsequent study by Verma and Bajpai similarly demonstrated very high awareness but lower current practice.

The most important findings from the reviewed literature are summarized below.

Table 1. Major studies included in the background/introduction evidence (References 1–25)

Ref	Study/source	Setting/sample	Principal findings relevant to review
1	WHO, 2025	Global	874 million women were estimated to use modern contraception; 164 million had

Ref	Study/source	Setting/sample	Principal findings relevant to review
			unmet need.
2	IIPS & ICF, NFHS-5	India	National contraceptive indicators showed substantial improvement in contraceptive use and decline in unmet need.
3	MoHFW, NFHS-5 update	India	CPR increased from 54% to 67%; unmet need declined from 13% to 9%.
4	Rizvi et al.	600 women, 30 Lucknow slums	99.2% knew contraception; use was 46.7%; condoms were commonest; fear of side effects was major discontinuation reason.
5	Kumar et al.	Urban slums, Lucknow	Literacy and sociodemographic characteristics influenced family-planning acceptance.
6	Verma & Bajpai	230 women, Lucknow	98.6% had contraceptive knowledge; 70.8% had ever used a method; condoms and OCPs were prominent current methods.

Ref .	Study/source	Setting/sample	Principal findings relevant to review	Ref .	Study/source	Setting/sample	Principal findings relevant to review
7	Young married women study	535 women, Lucknow slums	Unmet need was 55.3%; age, education, pregnancy history, knowledge, opposition and ANM contact were important determinants.	12	Geriya et al.	Ahmedabad slums	Evaluated unmet need, knowledge, attitude and contraceptive practices among currently married women.
8	Narayan et al.	NFHS-4, Indian slum women	Age, education, religion, caste, living children, child survival and sex of children were significant predictors.	13	Punjab urban-slum study	300 married participants	67% used contraception; condom was prominent; education was associated with greater use; fear of side effects and lack of knowledge were barriers.
9	Girase et al.	420 women, Solapur slum	Contraceptive use was 52.14%; limiting methods predominated; spacing-method use was low.	14	Hasan et al.	Gorakhpur urban slums	Examined contraceptive prevalence and determinants among eligible couples; socioeconomic and educational factors were important.
10	Prasanna et al.	375 women, Chennai slums	Unmet need was 13.8%; age, education, religion and number of living children were associated.	15	Gupta et al.	Bankura urban slum	Tubectomy was common; age at marriage, family type, living children, literacy and socioeconomic status influenced contraceptive behaviour.
11	Gunda et al.	Nalgonda urban slums	58.7% reported contraceptive use; tubectomy was common; partner approval, fear of side effects and socioeconomic status influenced acceptance.	16	Western Maharashtra	Urban slum	Contraceptive prevalence was

Ref .	Study/source	Setting/sampl e	Principal findings relevant to review	Ref .	Study/source	Setting/sampl e	Principal findings relevant to review
	study		41.9%; spacing methods were inadequately accepted.				non-use.
17	Kaware et al.	Urban slum, Maharashtra	Examined prevalence and reasons for non-use of different contraceptive methods.	22	Nagdeve	4551 urban-poor women	Family-planning use varied substantially between cities; background characteristics influenced use and unmet need.
18	Pundhir & Das	735 women, Noida slums	Only 53% had knowledge regarding contraception; highlighted urban-poor barriers and dynamics of utilization.	23	Rai & Unisa	India, DLHS-3	Opposition, health concerns and fear of side effects were major barriers to modern contraceptive use.
19	Bhilwar et al.	Delhi urban slum	Examined contraceptive use and induced abortion among married women.	24	Singh et al.	NFHS-5, India	Unmet need declined nationally but continued socioeconomic and geographic disparities remained.
20	Kolkata slum study	246 mothers	70.7% used some contraception; unmet need was 29.3%; age, education, socioeconomic status and desired family size were associated.	25	Kaur et al.	NFHS-5, India	Contraceptive use was approximately 65.7%; urban use was higher than rural use; education, wealth, fertility and demographic factors were important.
21	Upadhye & Upadhye	400 urban women	92.5% were aware of contraception; assessed practices, sources and reasons for	DISCUSSION			
				The present narrative review demonstrates that contraceptive choice among women of reproductive age residing in urban slums is a complex and			

multifactorial phenomenon influenced by demographic, socioeconomic, reproductive, interpersonal, cultural and health-system factors. The available evidence from Lucknow as well as other Indian urban-slum populations indicates that contraceptive behaviour cannot be adequately explained by awareness alone. Instead, the decision to initiate, continue, discontinue or change a contraceptive method develops through the interaction of knowledge, reproductive intention, perceived benefits and risks, parity, education, socioeconomic circumstances, partner support, family influence, cultural expectations and accessibility of healthcare services [1–9]. This multidimensional nature of contraceptive decision-making is particularly important in urban slum populations, where women may live relatively close to health facilities but still face substantial functional barriers to obtaining reproductive-health services.

One of the most important findings emerging from the reviewed literature is the persistent **knowledge–practice gap**. The study by Rizvi et al. conducted among 600 married women living in 30 urban slums of Lucknow reported that 99.2% of participants were aware of contraception, whereas only 46.7% were actually using a contraceptive method [7]. This substantial difference indicates that knowledge is necessary but not sufficient for contraceptive adoption. Women may know about contraception but may nevertheless remain non-users because of fear of side effects, desire for another pregnancy, opposition from husbands or family members, misconceptions about infertility, concerns about menstrual changes, lack of privacy or limited access to their preferred method. Similar findings were reported by Verma and Bajpai, who observed that 98.6% of women had knowledge of at least one contraceptive method, while the proportion reporting actual use was considerably lower [8]. These findings suggest that family-planning programmes should move beyond conventional awareness-generation strategies and address the social and behavioural barriers that prevent knowledge from being translated into practice.

The distinction between **awareness, ever-use and current use** is also important when interpreting contraceptive research. A woman who has used contraception at some point in her reproductive life may not currently be protected against pregnancy. Similarly, current use does not necessarily indicate consistent or correct use. For example, condom users may use condoms only intermittently, while women using oral contraceptive pills may miss doses.

Consequently, the effectiveness of a family-planning programme cannot be assessed solely by measuring whether women have ever used contraception. Information regarding current use, duration of use, consistency, discontinuation and switching should also be considered [7,8,11]. This distinction is particularly relevant in urban slums, where instability of employment, migration and limited continuity of healthcare may interfere with sustained contraceptive practice.

The very high unmet need reported among young married women in urban slums of Lucknow is another major finding. The study involving 535 women aged 15–24 years reported an unmet need of 55.3%, with spacing accounting for 40.9% and limiting for 14.4% [9]. This finding suggests that young married women represent a particularly vulnerable group requiring focused family-planning interventions. At this stage of life, many women have a need to delay their next pregnancy rather than permanently terminate fertility. However, they may face pressure to conceive soon after marriage, limited knowledge about reversible contraception, restricted decision-making autonomy and opposition from husbands or other family members. Therefore, family-planning services for young married women should emphasize healthy birth spacing and access to reversible methods rather than concentrating predominantly on permanent contraception.

The findings concerning **age and reproductive stage** are consistent across the literature. Younger women generally have a greater requirement for temporary methods because they are more likely to desire future pregnancies, whereas older women with higher parity and completed families are more likely to select permanent contraception [6,9,12]. Kumar et al. observed that contraceptive acceptance in Lucknow was associated with literacy and reproductive characteristics, with permanent methods becoming more prominent among women who had completed their desired family size [6]. Similar patterns have been observed in other Indian urban-slum populations [12–20]. These findings suggest that counselling should be individualized according to reproductive intention. A single method-oriented approach is unlikely to meet the needs of women at different stages of their reproductive lives.

Parity and number of living children are among the strongest reproductive determinants of contraceptive behaviour. Women with one or two children may be more interested in spacing their next pregnancy, whereas women with several children may wish to

limit further pregnancies. This relationship was demonstrated in multiple urban-slum studies [6,12–16]. Increasing parity may increase both the perceived economic burden of another child and the perceived health risks associated with repeated pregnancies, thereby increasing motivation to use contraception. However, the effect of parity cannot be considered independently of sex composition of children and fertility preferences.

The **sex composition of living children** is particularly relevant in settings where son preference persists. Couples who have several daughters but no son may continue childbearing despite already having a relatively large family. Evidence from Indian urban-slum populations indicates that the number and sex of living children can influence contraceptive behaviour [16]. This finding has important implications because it demonstrates that contraceptive utilization is closely linked to broader gender norms. Family-planning programmes alone cannot completely address this problem unless they are accompanied by interventions that improve the social value of daughters and promote gender equity.

Female education emerged as another important determinant of contraceptive choice. Educated women are generally more likely to obtain reproductive-health information, understand contraceptive mechanisms, communicate with healthcare providers and participate in household decision-making. The Lucknow study by Kumar et al. demonstrated an association between literacy and family-planning acceptance [6], while studies from Bankura and other urban-slum settings have similarly identified education as an important determinant [13,18]. Education may improve not only factual knowledge but also health literacy and confidence in making reproductive decisions. Nevertheless, education alone does not guarantee contraceptive autonomy. A woman may be educated but still be unable to use her preferred method if her husband or family opposes contraception.

The relationship between **socioeconomic status and contraceptive use** is complex. Women living in economically disadvantaged households may have strong motivation to prevent unintended pregnancies because additional children may place substantial financial pressure on the family. At the same time, poverty may reduce access to healthcare because women may be unable to afford transportation, lose wages when attending health facilities or pay for private consultations. Recent NFHS-based evidence has demonstrated important wealth-related

differences in contraceptive use and method selection [23–25]. Poorer women may therefore experience a paradox in which the need for contraception is high but access to preferred methods is limited.

Urban slum residence itself should therefore not be interpreted as a single homogeneous socioeconomic category. There may be considerable variation between households in income, education, employment, housing stability and access to government health services. Some women may have regular access to contraceptive commodities through nearby public facilities, while others may depend on pharmacies or informal providers. Future studies should therefore measure socioeconomic characteristics using standardized indicators rather than treating all slum residents as having identical levels of deprivation.

Another major determinant is **husband or partner involvement**. Although contraception is often discussed as a women's health issue, reproductive decisions frequently occur within the context of couple and family relationships. The Lucknow study among young married women demonstrated that opposition from husbands or other individuals was an important contributor to unmet need [9]. National analyses have also demonstrated associations between husband's education and modern contraceptive use [23]. These findings emphasize the importance of involving men in reproductive-health education. However, male involvement should mean supportive and informed participation rather than control over women's reproductive decisions. Women's autonomy and voluntary choice must remain central to family-planning services.

Fear of side effects is consistently identified as one of the most important barriers to contraceptive use and continuation. Rizvi et al. reported fear of side effects or health concerns as a major reason for discontinuation among women in Lucknow [7]. Similar concerns have been reported from other urban-slum populations [12–18]. Women commonly report fears of infertility, excessive bleeding, weakness, weight gain, menstrual irregularity, hormonal disturbances and future pregnancy complications. Some women may have experienced genuine adverse effects, whereas others may have developed fears based on misinformation or experiences communicated by relatives and friends. Consequently, providers should not dismiss women's concerns but should provide accurate counselling regarding expected adverse effects, warning symptoms and management options.

Misconceptions regarding infertility deserve particular attention. Young women who have not completed their families may avoid contraception because they believe that hormonal methods or IUCDs will cause permanent infertility. Such misconceptions can contribute significantly to unmet need for spacing. Counselling should therefore explain reversibility and expected return to fertility after discontinuation of temporary methods. Women should also be reassured that modern contraception does not generally cause permanent infertility when used appropriately.

The **contraceptive method mix** observed in the literature provides additional insight into women's preferences. Condoms are frequently reported as an important method in Lucknow and other urban slum settings [7,8]. Their popularity may reflect their low cost, accessibility, reversibility and lack of hormonal effects. An additional advantage is protection against sexually transmitted infections, including HIV [10]. However, condoms depend on correct and consistent use, and typical-use effectiveness is lower than perfect-use effectiveness [11]. Counselling should therefore include practical education regarding correct condom use and the importance of consistent use.

Oral contraceptive pills represent another important temporary method. Their advantages include reversibility, convenience and the absence of a procedure. However, daily adherence is required, and women may discontinue pills because of forgetfulness or concerns regarding hormonal effects. In the Lucknow study by Verma and Bajpai, oral contraceptive pills were among the important current methods [8]. In urban slum settings, where women may have irregular work schedules and multiple household responsibilities, adherence may represent an important challenge.

Intrauterine contraceptive devices provide long-term reversible contraception and are particularly suitable for women seeking prolonged birth spacing. Interestingly, Kumar et al. reported IUCD as the most accepted temporary method in their Lucknow urban-slum study [6]. However, IUCD acceptance may vary according to counselling, provider availability, prior experiences and perceptions of pain, bleeding and infertility. Thus, the presence of an IUCD service alone does not guarantee utilization. High-quality counselling and trained providers are essential.

Female sterilization remains an important component of India's contraceptive method mix,

especially among women who have completed their desired family size. Studies from Lucknow and other Indian urban slums have reported considerable use of permanent methods [6,12–16]. However, the predominance of female sterilization raises an important gender-related issue. If contraception is perceived primarily as a woman's responsibility, women may bear the physical and psychological burden of family planning disproportionately. Greater awareness and acceptance of male sterilization and male participation in temporary contraception could help distribute responsibility more equitably.

The **health system** plays a central role in translating reproductive intentions into actual contraceptive use. Availability of contraceptive commodities, geographical accessibility, affordability, privacy, provider attitude, counselling quality and follow-up all influence utilization [1,9]. A woman may be aware of a particular contraceptive method but still be unable to use it because it is unavailable at the nearest health facility or because visiting the facility would require loss of wages or childcare arrangements. These functional barriers are particularly relevant to women working in informal occupations.

Community health workers can help address these barriers. The association between auxiliary nurse-midwife contact and family-planning outcomes in the Lucknow young-women study highlights the potential importance of interpersonal health communication [9]. Community workers can identify women with unmet need, provide counselling, address misconceptions, distribute appropriate contraceptive commodities, encourage partner communication and facilitate referral for IUCD or sterilization services. Strengthening community-level services may therefore be particularly beneficial in urban slums.

Another important issue is **privacy and confidentiality**. Young married women may be reluctant to discuss contraception in crowded health facilities because of fear of judgement or lack of privacy. Confidential counselling is especially important when women have different reproductive preferences from their husbands or families. Health facilities serving slum populations should therefore ensure private counselling spaces and respectful communication.

The reviewed literature also demonstrates considerable **geographical variation** in contraceptive prevalence and unmet need. Studies from Lucknow, Solapur, Chennai, Nalgonda, Ahmedabad, Bankura,

Delhi, Kolkata and other urban settings have reported different levels of contraceptive use [6–21]. Such variation may result from differences in population characteristics, education, parity, cultural practices, service availability, study period and definitions of contraceptive use. Therefore, national or state-level averages should not be assumed to represent the reproductive-health situation of every urban-slum community.

Recent NFHS-5 analyses provide important national context. Agrawal et al. demonstrated that modern temporary contraceptive use was associated with reproductive history, husband's education, residence, caste and media exposure [23]. These findings reinforce the conclusion that contraceptive behaviour is influenced by multiple levels of determinants rather than by individual knowledge alone.

Similarly, Singh et al. reported continuing socioeconomic and demographic inequalities in unmet need despite overall improvement in India's family-planning indicators [24]. This suggests that progress at the national level may coexist with persistent unmet need among vulnerable populations. The urban poor should therefore remain an important target group for reproductive-health programmes.

Kaur et al. demonstrated rural–urban differences in contraceptive use and identified education, wealth, age, number of children, son preference and media exposure as important determinants [25]. These findings closely correspond to the determinants identified in the Lucknow and other urban-slum studies and reinforce the conceptual framework developed in the present review.

Recent evidence regarding **wealth differentials** further emphasizes socioeconomic inequality. Women from poorer wealth groups have greater levels of non-use and lower use of reversible modern contraceptive methods than women in wealthier groups [25,33]. This finding has direct implications for urban slums, where financial barriers may restrict access to preferred methods even when government services are theoretically available.

Contemporary socioeconomic evidence from Lucknow provides an opportunity to examine these patterns in a more recent context [26]. This is important because contraceptive preferences and service availability are not static. Over the past decade, government family-planning programmes have expanded the range of methods available and strengthened community-level reproductive-health

services. Therefore, contemporary studies are needed to determine whether the knowledge–practice gap identified in earlier Lucknow studies persists and whether the method mix has changed.

Postpartum contraception represents another important intervention point. Women have repeated contact with healthcare services during antenatal care, childbirth and postnatal follow-up. Emerging evidence suggests that health-worker contact, communication between spouses and women's self-efficacy may influence postpartum contraceptive adoption among women living in urban slums [27]. Integrating contraceptive counselling throughout the antenatal and postnatal continuum may therefore reduce missed opportunities.

The **source of contraceptive supply** is also important. Women may obtain contraception through government health centres, private clinics, pharmacies, community workers or other informal sources. Understanding these patterns can help identify supply gaps and ensure continuity of contraceptive availability [28]. Strengthening public-sector supply is particularly important for economically disadvantaged women who may not be able to afford private healthcare.

Improved monitoring of family-planning indicators is also necessary. Modern contraceptive prevalence, unmet need, method mix and continuation should be measured using standardized definitions [29,35]. Reliable monitoring allows health authorities to identify underserved populations and evaluate whether programme interventions are achieving meaningful improvements in reproductive autonomy rather than simply increasing commodity distribution.

An important conceptual implication of this review is that **contraceptive prevalence should not be considered the only measure of programme success**. A high prevalence rate may coexist with inadequate informed choice if women are pressured into a particular method. Similarly, non-use does not automatically indicate unmet need if a woman is intentionally attempting conception. Therefore, reproductive intention must be assessed alongside contraceptive practice.

Method continuation and discontinuation are equally important. A woman who initiates contraception but stops because of side effects or partner opposition remains at risk of unintended pregnancy if she does not switch to another method [7]. Family-planning programmes should therefore

provide follow-up and support for method switching. Counselling should make women aware that changing methods is acceptable when a method is unsuitable.

The evidence supports a **method-diversification approach** for urban slum populations. Condoms and oral contraceptive pills are important for short-term spacing; IUCDs and other long-acting reversible methods provide prolonged reversible protection; and sterilization remains appropriate for women and couples who have completed their desired family size. Ensuring availability of multiple methods supports informed choice and allows women to adapt contraception to changing reproductive circumstances [1]. The findings also highlight the importance of **male contraception and shared responsibility**. Condoms provide an accessible male-controlled method, while vasectomy offers a permanent option for couples who have completed their families. Greater male participation could reduce the disproportionate contraceptive burden placed on women. However, male involvement should always complement rather than replace women's autonomy.

The evidence further indicates that interventions should be **age- and reproductive-intention-specific**. Young married women may require spacing methods and counselling before the first or second pregnancy. Women with higher parity may require counselling regarding limiting methods. Postpartum women may require immediate or early postpartum options. Women discontinuing one method may need rapid counselling regarding alternative methods.

There are also important implications for **health education**. Community messages should address specific misconceptions rather than merely stating that contraception is beneficial. Counselling should explain that temporary methods are reversible, describe common side effects realistically, clarify when medical attention is required and explain the effectiveness of correct and consistent use. Such information can improve confidence in contraceptive decision-making. The review also indicates a need to strengthen **couple communication**. Women who are unable to discuss contraception with their husbands may have difficulty negotiating condom use or obtaining approval for other methods. Community-based couple counselling, when culturally appropriate and voluntary, may improve communication and reduce partner-related barriers.

Despite considerable progress in family-planning coverage in India, the persistence of unmet need

among vulnerable urban populations indicates that **equity**, rather than overall prevalence alone, should remain a central programme objective. Urban slum women should have the same opportunity for informed contraceptive choice as women living in more affluent urban communities.

The present review has several implications for future research in Lucknow. A contemporary community-based study should assess not only current contraceptive use but also knowledge score, method preference, reproductive intention, parity, sex composition of children, education, socioeconomic status, husband's attitude, family influence, side effects, duration of use, discontinuation, method switching, source of contraception and health-worker contact. Such a comprehensive approach would permit identification of independent predictors of contraceptive choice. Future research should also consider the role of **women's autonomy and decision-making power**. Measures of autonomy may include participation in healthcare decisions, ability to visit health facilities independently, control over household resources and ability to communicate with the husband regarding reproductive decisions. These factors may provide important explanations for contraceptive behaviour that cannot be captured by demographic variables alone.

Another important research area is the role of **digital and mass-media exposure**. Recent NFHS-5 analyses suggest that exposure to media may influence modern contraceptive use [23,25]. With increasing smartphone and internet penetration, future interventions may consider culturally appropriate digital reproductive-health education, while ensuring that information remains scientifically accurate and accessible to women with limited digital literacy.

Overall, the evidence from references 1–36 demonstrates a consistent pattern: **contraceptive behaviour is determined by the interaction of individual knowledge, reproductive intention, demographic characteristics, socioeconomic circumstances, gender relations, family influence and health-system accessibility**. The persistence of a knowledge–practice gap in Lucknow indicates that improving awareness alone is unlikely to be sufficient.

Therefore, the most appropriate approach for urban slum populations is a **client-centred, rights-based and choice-oriented family-planning strategy**. Such a strategy should ensure reliable availability of multiple contraceptive methods, confidential

counselling, management of side effects, community-based outreach, male engagement, postpartum counselling and easy access to method switching [1,27–36]. Particular priority should be given to young married women because of the high unmet need for spacing identified in Lucknow [9]. In conclusion, contraceptive choice should be viewed as a dynamic process rather than a single behavioural outcome. Women may move from condoms to pills, from pills to IUCDs, or from temporary methods to permanent contraception as their reproductive goals change. Family-planning programmes should therefore provide continuous access to information and services throughout the reproductive life course. For women living in urban slums of Lucknow, improving contraceptive choice will require not only better availability of methods but also greater attention to **education, autonomy, partner communication, socioeconomic barriers, misconceptions, side-effect management and quality of counselling**.

The evidence ultimately supports the need for a contemporary, community-based assessment of contraceptive choices and their determinants among women of reproductive age in urban slums of Lucknow. Such a study would help determine whether the knowledge–practice gap documented in earlier research continues to exist, identify the current contraceptive method mix, quantify unmet need and reveal the specific social and health-system barriers that prevent women from achieving their desired reproductive goals.

CONCLUSION

Contraceptive choice among women of reproductive age residing in urban slums is a complex and multidimensional process influenced by demographic, socioeconomic, reproductive, cultural, interpersonal and health-system factors. The evidence reviewed demonstrates that although awareness regarding contraception is generally high, a substantial gap continues to exist between **knowledge and actual contraceptive practice**. This gap indicates that improving awareness alone is insufficient; women must also have the autonomy, family support, accurate counselling and convenient access required to translate knowledge into appropriate contraceptive use.

Evidence from Lucknow demonstrates considerable variation in contraceptive practices, with condoms, oral contraceptive pills, IUCDs and female sterilization representing important components of

the method mix. Age, education, parity, number and sex of living children, socioeconomic status, fertility intentions and husband's attitude substantially influence method selection. Young married women appear particularly vulnerable because of their high need for birth spacing and the presence of substantial unmet need.

Fear of adverse effects, misconceptions regarding infertility, concerns about menstrual changes, partner or family opposition and limited accessibility of services remain important barriers to contraceptive initiation and continuation. These findings emphasize the need for counselling that is individualized, scientifically accurate, culturally sensitive and free from provider bias. Women should be offered a range of contraceptive options and supported in choosing the method most compatible with their reproductive intentions.

The review also highlights the importance of **male involvement and couple communication**, while ensuring that women's reproductive autonomy is protected. Community health workers, urban health centres and primary healthcare facilities can play a critical role in identifying unmet need, correcting misconceptions, providing contraceptive counselling, facilitating access to long-acting reversible methods and supporting women who experience side effects or wish to change methods.

Future family-planning programmes in urban slums of Lucknow should therefore move from a predominantly awareness- and distribution-based approach toward a **client-centred, rights-based and informed-choice model**. Services should ensure reliable availability of multiple contraceptive methods, confidential counselling, appropriate management of adverse effects, postpartum contraceptive counselling, male participation and affordable community-based access.

In conclusion, successful family planning should not be measured solely by contraceptive prevalence. It should be assessed by whether women are able to make **voluntary, informed and autonomous decisions**, obtain their preferred contraceptive method, use it correctly and continuously, and change or discontinue it safely when their reproductive goals change. Strengthening these components can reduce unmet need, prevent unintended pregnancies, promote healthy birth spacing and contribute substantially to improved maternal, neonatal and family health among women living in the urban slums of Lucknow.

Declarations

Funding: NA

Competing Interests: The authors declare that they have no competing interests or conflicts of interest related to this study.

Ethical Approval: Not applicable (review article).

Consent for publication: There is consent for the publication of this paper.

Authors' contributions: All authors contributed equally.

Acknowledgements

The authors are grateful to the Dean, Head of the Department of Community Medicine, and our guide and co-guide at Integral Institute of Medical Sciences & Research, Faculty of Medicine and Health Sciences, Integral University, Lucknow for their valuable academic guidance and continuous support. MCN No.....

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