"Unmet need for Family Planning Services among Young Married Women residing in Urban Slums of Belagavi city- A Cross- sectional study."

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With reference to the above, we wish to inform you that your proposed research project titled **"UNMET NEED FOR FAMILY PLANNING SERVICES AMONG YOUNG MARRIED WOMEN RESIDING IN URBAN SLUMS OF BELAGAVI CITY- A CROSS SECTIONAL STUDY",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee.

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LIST OF ABBREVIATIONS USED

Serial No.	Abbreviation	Expansion
1	FP	Family Planning
2	IUCD	Intra Uterine Copper Devices
3	LMIC	Low- and Middle-Income Countries
4	NFHS	National Family Health Survey
5	OCP	Oral Contraceptive Pills
6	OR	Odds Ratio
7	PPIUCD	Post partum Intra Uterine Copper Devices
8	SES	Socio-economic status
9	SPSS	Statistical Package for Social Science
10	UNFPA	United Nations Fund for Population Activities
11	UPHC	Urban Primary Health Centre
12	WHO	World Health Organization

ABSTRACT

Unmet need for Family Planning Services among Young Married Women residing in Urban Slums of Belagavi city- A Cross- sectional study

Background:

The unmet need for family planning remains a major public health concern in developing countries. Unmet need is highest among young married women (15-24 years). Currently few data is available about unmet need for Family Planning among vulnerable section of the community, i.e. young married women living in the urban slums.

Objectives:

This study intended to assess the unmet need for family planning services among young married women (18-24 years) residing in urban slums of Belagavi city. Also to determine the factors influencing the unmet need for family planning services among them.

Methodology:

This community based cross-sectional study was carried out between 1st April 2023 and 31st March 2024 among 380 young married women residing in the urban slums of Belagavi city using a predesigned pre-structured pre-tested validated questionnaire through interview method after obtaining written informed consent of the participant. Collected data was entered using Microsoft Excel software and analysed in SPSS software.

Results

The mean age of the participants residing in the urban slums of Belagavi city is 22.61 ± 1.51 years. Most of the participants were Muslim (63.42%). Majority of them had completed secondary school (45%). Most of them were home-maker (89.21%), lived in joint family (55.26%). Majority of the study participants belonged to Class III (68.16%) based on Modified B.G. Prasad's Socio-economic status classification. Mean age at marriage was 18.52 ± 1.58 years. The prevalence of unmet need for family planning services among young married women living in urban slums of Belagavi city was 54.21%. Most commonly used contraceptive method was intra uterine device (29.31%). Reasons for not using family planning services were lack of knowledge (45.81%), fear of side effects (18.99%), negligent attitude (16.76%), opposition to use (11.73%), method related reasons (4.47%), hesitancy etc. Significant association was found between unmet need and age of the participants, number of pregnancies, spousal motivation, knowledge about free of cost services for family planning methods, contacts with health care providers, media exposure.

Conclusion

The results highlight the critical need for focused interventions, especially for vulnerable groups like young women living in urban slums, such as raising awareness, clearing up misconceptions and expanding access to free of cost family planning services. Reproductive health outcomes in this population can be improved and unmet need can be further decreased by enhancing media outreach, healthcare provider participation, and spousal communication.

Key words: Young married women, Family planning, Unmet need, Urban slum (4)

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Introduction

In a woman's life, having children is considered to be one of the most important phases, especially during her reproductive years. Women who go through the pregnancy and child birth processes face life-altering physical and psychological changes that are typically linked to both great emotional benefits and stress.[1,2] Nevertheless, a large percentage of women worldwide are still uninformed about the benefits of a planned pregnancy and frequently get pregnant without making the necessary preparations.[3]

Unintended pregnancy, as a major risk factor for induced abortion and obstetric complications, is considered among the most challenging issues within the domain of maternal and child morbidity health, and women's reproductive health globally.[4,5]Unwanted pregnancies have been linked to a number of detrimental physical and mental health consequences for both the mother and the unborn child, impacting many socioeconomic and cultural facets of community health.[6,7] An estimated 80 million unwanted pregnancies occur annually throughout the world. Mothers, kids, and society at large suffer as a result.[8] Research indicates that one of the main causes of maternal death worldwide is unsafe abortions, which occur in 25% of unwanted pregnancies.[9]

The disconnect between women's reproductive objectives to prevent pregnancy and their usage of contraception is embodied by the unmet need for family planning.[10] **Unmet family planning (FP) needs** are defined by the World Health Organisation (WHO) as ***people who are sexually active and fertile but do not use contraception, stating that they do not want any more children or that they would prefer to postpone having more children.***[11] Unsafe abortions, unwanted pregnancies, and high fertility have all been connected to unmet FP needs.[12]

Approximately 214 million women globally lack access to family planning.[13] In underdeveloped nations, almost 200 million women lack access to family planning.[14]Over 75 million unwanted births occur each year as a result of the estimated 225 million women in developing nations who wish to postpone, space out, or prevent getting pregnant but do not use effective forms of contraception. [14]If all women in Low- and Middle-Income Countries (LMICs) who wish to avoid pregnancy used modern contraceptives and all pregnant women received care that complies with international standards, the number of unwanted pregnancies, unsafe abortions, and maternal deaths would decrease by roughly two-thirds.[15]

Family planning is defined as ***"A way of thinking and living that is adopted voluntarily, upon the basis of knowledge, attitudes, and responsible decisions by individuals and couples, in order to promote the health and welfare of family groups and thus contribute effectively to the social development of a country,"*** was the definition provided by a WHO expert committee in 1971.[16] Globally, family planning (FP) is regarded as one of the main public health concerns & for women, family planning offers a host of social, financial, and health advantages by preventing unwanted pregnancies, can also lessen the danger of unsafe abortions, additional feto-maternal problems, and the financial burden.[17]People who have adequate access to contemporary family planning (FP) techniques are better equipped to make decisions regarding their sexual and reproductive health, as well as to achieve the desired number of children and spacing between births.[18] Since many national governments and development organisations are committed to expanding access to contraceptive services and supplies, public education initiatives, and policies to lower structural and social barriers, family planning is seen as an unfinished global health agenda and has been a top research and investment priority.[19] Global health organisations have worked to enhance maternal health and wellbeing during the last thirty years. Family planning was acknowledged as one of the primary measures to lower maternal illness and death and increase child survival by the Safe Motherhood Initiative, which

was organised in Nairobi in 1987 by the World Bank, WHO, and United Nations Fund for Population Activities [UNFPA].[20,21]

With the primary goal of population control, India was the first nation in the world to implement a family planning program as early as 1952.[16]

According to the Indian Demographic and Health Survey 2015-2016, 11.9% of pregnancies in India were unplanned, which may have an effect on the general well-being and reproductive health of Indian women.[22] Of the 1.2 billion teenagers worldwide, 20% are from India; of them, at least 1.5 million girls marry before turning 18 every year. Nine percent of Indian adolescent girls in rural areas and five percent in urban areas have already started having children.[23] low- and middle-income nations have greater rates of unmet FP needs and unintended pregnancy burdens among married teenagers compared to older women.[24] A significant amount of unmet FP demand is observed in the 15–19 and 20–24 age groups (27% and 22%, respectively).[25] In India, the unmet need for contraception has decreased over time. In NFHS-4,[14] 12.9 percent of women in the reproductive age range (15–49) had unmet contraceptive needs, down from almost 23 percent in NFHS-3.[26] Notably, states and districts have not experienced an equal rate of decline in unmet need. In India, the unmet demand for family planning was 9.4%, while the unmet needs for spacing and limiting were 4% and 5.4%, respectively, according to NFHS-5.[15] It is noteworthy that 87.9% of the demand for contraception was met.[27]

By 2030, there will be two billion people living in urban slums, worldwide.[28] According to the UN, slums are densely populated regions that lack one or more of the following: enough living space, access to better sanitation and water, long-lasting housing, and security of tenure.[29]The urban poor face higher fertility rates, unmet family planning needs, and poor maternal health. Factors such as unemployment, overcrowded living conditions, limited access to healthcare, gender-based violence, and restricted decision-making for women contribute to these

challenges.[30] Contraceptive use is low young married women, with rates of 14.5% for ages 15-19 and 26.7% for ages 20-24. The fertility rate in slums is higher (2.96) compared to non-slum areas (2.78), and contraceptive use is also lower in slums (58.2%) compared to non-slums (65.1%)[26]

In slums, there are huge population, poor contraceptive usage among women in this age range (15–24 years), and living in unfavourable conditions make them the most prevalent group in need of family planning services from a public health standpoint. It is crucial for policy makers and programme managers to comprehend this young population's demand for family planning services and the variables impacting that need. In this nation, no such information is currently accessible for this age range, particularly for young married women living in urban slums.

In order to create focused interventions, policymakers and program managers must have a thorough understanding of the FP requirements and influencing variables of young married women (15–24 years old) living in urban slums. The dearth of precise statistics on this susceptible population, however, emphasises the pressing need for study to close this knowledge gap and enhance FP services, which would eventually lower the rate of unwanted pregnancies, unsafe abortions, and maternal deaths.

The study was conducted to evaluate the unmet need for family planning services among the currently young married women (18 to 24 years) living in urban slums of Belagavi city, Karnataka, India, as well as the reasons for the unmet need and factors influencing it. This will make it easier to identify the factors at the individual, community, and health services levels that can be used or altered to improve the use of contraceptives and make it possible for young women living in urban slums to get the contraceptives they need at this stage of the family-building process.

OBJECTIVES OF THE STUDY

Primary objective:

To assess the unmet need for family planning services among young married women (18-24 years) residing in urban slums of Belagavi city.

Secondary objective:

To determine the factors influencing the unmet need for family planning services among Young married women (18-24 years) residing in urban slums of Belagavi city.

Review of Literature

The unmet contraceptive needs have decreased over time, but vary across regions and socioeconomic groups. Identifying the characteristics of ladies in communities with high unmet needs is crucial for developing effective strategies to improve access to and use of contraceptive methods.

In metropolitan Mysuru, Karnataka, a community-based cross-sectional study involving 162 married women aged 18 to 49 was carried out. They have found that 29.01% of women had an unmet need for family planning, with 17.3% needing spacing, 11.71% needing limiting methods. Out of them 43.2% were using some form of contraception, and 80.86% knew at least one method. Among those, 55.55% had used one or more methods, with tubectomy being the most common (35.18%), followed by male condoms (14.81%) and IUCD (9.87%). IUCD was the preferred method for spacing, and female sterilization was preferred after completing the family. One woman reported contraceptive failure with IUCD. Lack of knowledge (44.68%), concern about adverse effects (31.91%), resistance from family (21.27%), and carelessness (40.42%) were the main causes of unmet needs. Unmet needs were found to be significantly influenced by the women's age, education, religion, age at marriage, length of marriage, active married life, parity, and contraception decision maker. The primary explanations given for unfulfilled needs were ignorance, the women's careless behaviour, side effect anxiety, and family resistance.[31]

A cross-sectional study conducted in 2023 examined the prevalence of unmet contraceptive requirements and factors impacting contraceptive usage among 306 women in the reproductive age group, aged 15–49, who lived in Telangana's urban and rural areas. Unmet contraceptive

needs were found to affect 18.6% of women, with urban areas having significantly higher rates than rural ones (24.2% and 13.1%, respectively). Cities have far greater levels of limiting requirement (12.4%) and spacing need (6.2%) than villages (7.8%). Over half of the women (55.0%) were utilising the permanent technique, with rural and urban areas accounting for 29.3% and 25.9% of the total. With 50.3% of study participants using it, the condom was the most widely utilised spacing strategy. It was used nearly equally in rural and urban areas. OCPs are the second most popular option, accounting for 23.8% of usage, followed by intrauterine devices (IUDs), which are used by individuals at a rate of 14.96%. Injectables (7.76%), emergency contraceptive tablets (1.4%), avoidance (6.1%), and the safe period method (4.8%) are additional means of contraception. The occupation of the correspondent was strongly associated with an unmet need for contraception. The significant unmet demand for contraception among Telangana women is proof that there is a knowledge-action gap in promoting healthy attitudes and practices about contraception.[32]

In 2018, a community-based cross-sectional study of 422 married rural women was carried out in Jammu, India. The age between 26 and 35 years old accounted for half of the study population. Married women currently utilise spacing contraceptives at a rate of 16.4%. Most participants in this research said they had heard of any form of birth control. The participants' primary source of information on any type of contraception was the male condom (97.2%), followed by female sterilisation (82.9%); of these, 77.2% cited the media and 42.15 cited medical professionals. Just under one-fifth (20.8%) were using any form of birth control. 4.5% of individuals who were using had permanent sterilisation, while 16.4% relied on the spacing approach. The most widely used temporary contraceptive method was the male condom among women (55.7%), followed by the oral pill (13.6%). Less than one-third (31.7%) of those who did not use a contraceptive technique cited ignorance of any such

method, while almost one-fourth (24.2%) were either pregnant or nursing a kid at the time of non-use. Over two-fifths of them expressed a desire to use contraception in the future. The most popular methods of contraception among married women who reported using them in the future were female sterilisation (41.6%) and male condom (46.8%). 46% of respondents stated that they were unaware of the contraceptive method, and 26.5% cited fear of infection or adverse consequences as their reason for not wanting to use any method in the future. Ladies with greater knowledge, those in nuclear families, those with two or more surviving children, and those who lived close to a health centre were considerably more likely to utilise the spacing contraceptive method at the moment.[33]

A cross-sectional study conducted in the urban slums of Lucknow, UP, among young married women (15–24 years) found that 87.6% had a demand for family planning, with 68.2% for spacing and 19.4% for limiting. However, over half (55.3%) had an unmet need, primarily for spacing (40.9%) and limiting (14.4%) methods. When compared to older females, the knowledge of contraception was lower among the study population. Key reasons for unmet need included embarrassment (69.2%), lack of knowledge, and opposition from family members. Unmet need was highest among women aged 15–19 (90.9%), illiterate women (92.9%), and those with unemployed or uneducated husbands. Women married for less than a year, from lower socioeconomic backgrounds, and those desiring fewer children had higher unmet need. Additionally, women with no contraceptive knowledge or who faced opposition had higher unmet needs. The study highlights the need for education and improved access to family planning.[34]

Despite the illegality of marriage under 18 in India, many adolescents marry and start childbearing early. 13,232 married teenagers (15–19 years old) who were not pregnant at the time of the survey participated in a study based on the National Family Health Survey (NFHS). Married teenagers' usage of contemporary contraception rose from 4% in 1992–1993 to 10% in 2015–2016, with 25% of their needs going unmet. Contraceptive use was higher among educated adolescents (12.21% vs. 8.02%), those with children (20.52% vs. 7.72%), and those in wealthier quintiles (15.87% vs. 9.64%). Media exposure (13.39%) and discussions with healthcare workers (34.11%) also increased contraceptive use. The most preferred methods were condoms and pills. Factors like lack of education, poverty, rural residence, and no children reduced contraceptive use.[35]

Understanding and addressing unmet need is crucial for advancing reproductive health and achieving sustainable population growth. Over the years, various studies have explored the prevalence, factors, and implications of unmet demand for contraceptives, particularly in developing countries like India. The National Family Health Surveys (NFHS), conducted in India since 1992, offer comprehensive data on reproductive health, including unmet need for family planning. These surveys have revealed a significant decline in unmet need over the years, from 20.6% in 1993 to 9.4% in 2021. This pattern reflects advancements in family planning services accessibility, contraceptive use, and general reproductive health awareness. Research highlights several factors contributing to unmet need. Demographic variables such as age and socioeconomic status play a crucial role. Women in the younger age group (15–19 years) and those from the poorest wealth quintiles are more likely to have unmet need, as they may face barriers to accessing contraception due to lack of information, financial constraints, or cultural norms. Urbanisation and education have also been demonstrated to reduce the prevalence of unmet demand since they increase the likelihood that urban dwellers and literate women will have access to and utilise family planning techniques.

Regional disparities are particularly striking in India, with northern and north-eastern states exhibiting higher unmet need compared to southern and western regions. These regional variations can be attributed to differences in healthcare infrastructure, cultural factors towards family planning, and local policies. For example, states like Uttar Pradesh and Bihar, with large populations and limited healthcare resources, have faced persistent challenges in ensuring access to contraception.

The findings from NFHS underscore the need for targeted interventions and policies. Efforts to reduce unmet need should focus on high-prevalence regions, improving access to contraceptive methods, and addressing the social and economic barriers that prevent women from using contraception.[36]

An observational analytical cross-sectional study was carried out in 2021 among 201 married women in Karad town, western Maharashtra, who were slum dwellers and in the reproductive age range of 18 to 49 to determine the prevalence of unmet contraceptive demands among them and factors linked to unfulfilled family planning needs and to determine the cause of the same. According to the study, 35.3% of women did not receive the family planning they needed., 64.7% had demonstrated that they needed family planning. Hindus, aged over 34 and those with less than five years of marital life were all found to be at risk for unmet needs (OR>1). Ignorance was the most common cause for not using contraceptives (46.5%), followed by postpartum amenorrhoea (25.4%), and a preference for a male kid (4.2%). [37]

In order to know the family planning practices of tribal married women aged 15–49 and to evaluate the unmet need for contraceptives and its factors in West Bengal, a descriptive, cross-sectional survey was done in 2020. By using simple random sampling, 530 study participants were chosen from the study region. Required Outcomes: Every research participant was Hindu and of Santhal ethnicity; 52.4% had adolescent pregnancy, 51.7% had an early marriage, and 53.4% were illiterate. Just 41.1% of women were found to be taking contraceptives at the moment, 14.5% had used them in the past, and 44.4% had never used any kind of technique. Contraceptive types used-OCP (11.9%), IUD (37.2%). condom (14.2%), ligation (28.0%), vasectomy (2.3%) and depot medroxy progesterone acetate(DMPA) (6.4%). According to the participants, the most frequent cause of unmet need among the women was fear of side effects (42.7%). Other factors included spousal rejection of any approach (16.5%), discouragement from other family members (8.7%), lack of availability of methods (3.9%), non-accessibility (19.4%), and ignorance of availability (37.9%). One important predictor of the women's current use of contraceptives seemed to be their age. 19.4% unmet demand for family planning was found to be significantly predicted by the women's age, socioeconomic status, and family structure.[38]

In 2014, a community-based study was carried out in two slum communities of Mumbai, it was found that 59.4% of married women aged 18-39 were using some form of family planning, while 40.6% had an unmet need for contraception. This aligns with global findings that show significant gaps between knowledge and use of family planning methods. Awareness of modern contraceptive methods was universal among women with unmet needs, but only 25% had ever used contraceptives. Among contraceptive users, oral contraceptive pills (39.7%) and condoms (38.3%) were the most common methods. The main barriers to contraceptive use included fear of adverse effects (48.9%) and postpartum amenorrhoea (30%).

The study also found that the unmet demand for contraceptives decreased as women aged and as the number of children increased. Females aged 18-22, unmet need was higher than met need, whereas, in older women, the opposite trend was observed.

Overall, this study highlights the disparity between family planning method awareness and behaviour, with health issues and fear of adverse effects serving as major disincentives.[39]

A cross-sectional study was conducted in Guntur, Andhra Pradesh, in 3 urban slums. 280 married women in this region between the ages of 15 and 49 were chosen for the study. (38.57%) had unmet contraceptive needs, of which (15.71%) had a need for spacing and (22.86%) had a need for limiting birth. Women with one or no children had the highest unmet requirement for spacing (30.56%). Unmet family planning needs were frequently attributed to husband rejection (28.70%), ignorance (22.22%), and side effect worry (25.00%). Counselling eligible couples on the small family norm is crucial, and health education programs are required to raise awareness.[4]

A cross-sectional study was carried out in the year 2021 to explore the factors influencing the unmet family planning demand among ladies of childbearing age (15-49 years) living in the slums of Bandung City, Indonesia with a sample size of 304 women. The following are the key findings: 29.3% of married ladies in the slums have an unfulfilled demand for family planning. A significant proportion of these women (55.3%) are less than age of 35 years. A majority (37.2%) of these women have attained only primary school education, 59.5% of the women earn less than the minimum wage in Bandung City, which impacts their ability to access family planning resources. Most women had their first child between the ages of 21-35 years

52.0% and 70.7% have 2 children. 70.4% have limited power in family decision-making, 61.2% of women have not received any counselling on family planning from health workers, community leaders. 79.6% of the female have not been exposed to information on family planning through media channels such as TV, radio, or printed materials, suggesting a lack of awareness. Factors Associated with Unmet Need for Family Planning were women aged 35 years or older have a higher unmet need (39.8%) compared to those younger than 35 years (22.0%). Low family income, lack of decision- making power by the woman for the family are associated with higher unmet needs for contraceptives. Women who have experienced the death of a child, having more children, lack of exposure to family planning information via media contributes to the unmet needs. According to this study the barriers for using Family Planning Methods are fear of adverse effects (22.5%), partner disapproval (19.1%), preference for Non-Modern Methods, desire to undergo sterilization soon (11.2%), preference for male children, lack of awareness on modern contraceptive methods & 10.1% of women discontinued copperT IUD because of side effects. This study highlights multiple factors contributing to the unmet need for family planning among women in slums of Bandung City. These include demographic factors such as age and education level, socioeconomic issues like income, and poor access to contraceptive information and services. Cultural and personal factors, such as fear of adverse effects, partner disapproval, and gender preferences, also play a significant role. Addressing these barriers requires targeted interventions that enhance women's empowerment, provide better access to family planning resources, and increase awareness through media campaigns.[41]

A cross-sectional study of 400 married Rohingya refugee women, aged 18 to 49, who had been living with their spouses in the Rohingya camp in Bangladesh, was conducted in 2019. The average age was 25.53 years (±6.34). Over three-quarters (78%) of them were housewives, and over half (51.8%) had no formal education. The study participants had an average of four

children (3.98±2.60). In terms of media consumption, 25.8% used the internet and 58.2% listened to the radio. Women (45.3%) stated that their primary sources of information regarding FP came from health care workers and Non-Governmental Organizations. During the survey period, just 2% of the Rohingya refugee women (48.7%) who heard about condoms reported that their husbands used them. The oral contraceptive pill (OCP) was used by 28.8% of people, whereas 84% of people were aware of it. Furthermore, 10.5% of respondents had heard of intrauterine devices (IUDs), and 2.3% were aware of Norplant as a form of birth control, none of them had ever used either of these methods. 40.5 percent had used the Depot-Provera injection during the survey, and 89 percent were aware of it. 51.96% of women admitted that they never used the family planning method because their spouses disapproved of it; 46.08% wanted to become pregnant and 44.12% believed that using the FP method was sinful. (28.43%) believed that irregular sex was a means of preventing pregnancy; (22.57%) were concerned about potential adverse effects; 22.55% were unsure of how to use a contraceptive; Rohingya women's greater knowledge of FP was significantly correlated with having a profession, having fewer children, visiting a clinic or healthcare facility and contact with health care worker. Of those, 22.57 %were concerned about potential side effects, 6.86 % believed that taking contraceptives would lessen the enjoyment of sexual activity, 10.78 % believed that having more children may bring financial stability to the family, and 16.67 % did not wish to use any. [42]

A 2021 stepped-wedge, cluster-randomized trial in Nepal followed 26,222 women, including those with and without post - partum IUDs. Unfulfilled demand for modern contraception was high, at 54.2% at first year and 49.6% at second years of postpartum, with a higher need for spacing than limiting methods. Women who received family planning

counselling both before and after discharge from the hospital after delivery had lower unmet need (41.0% at year one and 42.8% at year two). Counselling at both points reduced unmet need by 27%. Sociodemographic factors influencing unmet need included older age, husbands being away, and prior family planning use. Women with more than secondary education had a higher chance of unmet demand. The study found that counselling at two points (pre- and post-discharge) was the most effective strategy in reducing unmet demand for contraception during the postpartum period.[43]

In order to investigate the degree of unmet family planning (FP) needs among married women in Myanmar, both urban and rural, as well as their demand for and satisfaction with FP, a cross-sectional survey was done in 2016. In all, 1100 married female between the ages of 18 and 49 took part. Overall, 67.2% of people used contraception, with 70% living in villages and 63% in cities. Approximately 19.4% women in the study had an unmet FP need; this percentage was much greater for urban women than for rural ones (22.6% versus 16.6%). 12.0% of the unmet need group had an unmet demand for limiting (to stop having children) because they did not wish more and 7.4% had an unmet demand for spacing because they wished to delay having children. Compared to their urban counterparts, rural women likewise had significantly lower odds (adjusted OR: 0.63) of unmet need. Approximately 86% of the women expressed a desire for contraception, and 77% of them were able to get it. When asked why they stopped using contraceptives, women who had previously used them most frequently gave the following reasons: wanting a child, having infrequent sex or the husband being away, and experiencing issues with the method. Current non-users frequently cited the following reasons: the respondent's opposition, seldom sex, and fear of side effects (health issue). The

research population showed a rather high coverage of contraception; yet, a sizable fraction of women, particularly those living in cities, had unmet FP needs.[44]

A systematic review was conducted to explore the causes influencing the unmet family planning needs and non- usage of modern contraceptive methods in postpartum women of Sub-Saharan Africa. This review involved an extensive search of online databases, including MEDLINE, Cochrane Review, PubMed, Elsevier's Science Direct, and Web of Science, complemented by hand searches. Total 19 studies were included, consisting of one qualitative study, 17 quantitative studies, and one mixed-methods study. These studies were predominantly conducted in Ethiopia (11 studies), Nigeria (3 studies), Kenya (2 studies), Malawi (2 studies), and Uganda (1 study).

The review found that factors contributing to unmet needs for modern contraceptive methods were identified at three main levels: personal, family, and healthcare facility. At the individual level, reasons for not using included fears of side effects, low perception of pregnancy risk during the postpartum period, and the absence of menstruation. Many women mistakenly believed they could not become pregnant due to the absence of menstruation after childbirth. At the household level, the husband's disapproval of contraception and cultural norms regarding family planning were significant barriers. In many cases, females were reluctant to use family planning methods without their partner's consent, highlighting the importance of husband involvement in family planning decisions. At the healthcare facility level, challenges included limited access to family planning services, insufficient counselling by healthcare providers, and shortages of contraceptive methods. In many cases, women had little support or information about available contraceptive options, which led to underutilization.

The review concluded that the unmet demand for postpartum family planning in Sub-Saharan Africa is influenced by the combination of health-system, socio-demographic, and cultural factors. To address these challenges, the review emphasizes the need for improved knowledge of modern family planning methods, better access to contraceptive services, and increased involvement of male partners in family planning decision-making. The findings suggest that more research is needed in under-studied countries to further explore and address the barriers to contraceptive use in this region.[45]

Methodology

Source of Data:

Young married women (18-24 years) residing in urban slums of Belagavi city.

Study Design: Community based Cross-sectional study.

Study Period: The study was carried out between 1st April 2023 and 31st March 2024

Study Area: 12 Urban slums of Belagavi city, Karnataka.

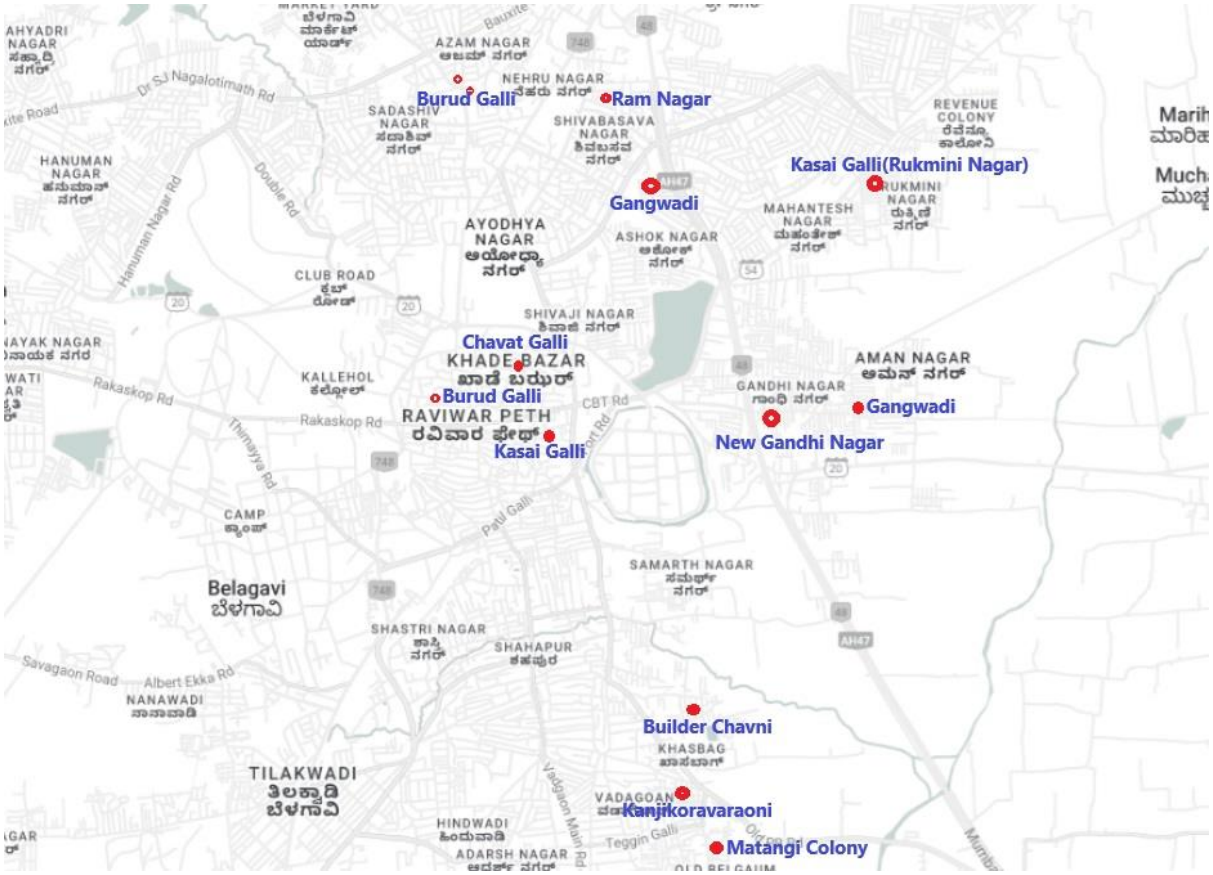


Figure 1: Locations of twelve urban slums of Belagavi city, Karnataka

Sample Size:

Sample size was calculated by the following formula,

$$n = \frac{Z^2 \times p \times q}{d^2}$$

Taking the Prevalence (p) of unmet need for family planning services among young married women living in urban slums as 55.3%.[34]

$q = (100 - p) = (100\text{-}55.3) = 44.7$

d= allowable error = 10% of prevalence (p) the value of the standard normal variable at 0.05 (two sided)

the sample size is calculated as 324.

The ultimate sample size, taking into account a 20% non-response rate, is 390. A sample of 380 young married women (18–24 years old) was analysed after excluding 10 nonresponding women.

Sampling technique:

According to National Family Health Survey (NFHS) 5 data[27], Percentage of young married females between 15 and 19 years is 6.8% and between 20 and 24 years is 23.3%. The percentage of young married women aged between 18-24 years is 26%.

There are 12 urban slums in Belagavi city namely - New Gandhinagar, Ram Nagar, Kasai Galli (RukminiNagar), Gangwadi(Gandhinagar), Gangwadi (Ashok Nagar), Burudgalli (no1376,Nehrunagar), Chavat Galli, , Builderchavni, Kanjikoravaraoni, Matangi Colony, Burudgalli, Kasai Galli (Autonagar) and all the slums were included in the study.

Total population in those 12 slums are 11391 & 2149 of total house with 1450 young married ladies of age group 18-24 years.

Table 1: Details of 12 Slums in Belagavi city

Serial no.	Name of the slum	Total house	Total population	Total female	18-24 years young married women
1	New Gandhinagar	950	4685	2296	597
2	Ram Nagar	352	1782	873	227
3	Kasai Galli (Rukmini Nagar)	123	957	469	122
4	Gangwadi(Gandhinagar)	160	870	426	111
5	Gangwadi (Ahok Nagar)	206	761	373	96
6	Burudgalli(no1376,Nehrunagar)	82	461	226	59
7	Chavatgalli	64	422	207	54
8	Builderchavni	63	380	186	48
9	Kanjikoravaraoni	52	365	179	47
10	Matangi Colony	49	303	148	38
11	Burudgalli	10	200	97	25
12	Kasaigalli (Auto Nagar)	40	205	99	26
Total		2151	11391	5579	1450

Source: Karnataka slum development Board, Belagavi, Karnataka[46]

For the selection of study participants from each slum, systematic sampling method was used, where a random sample, with a fixed periodic interval, is selected from a larger population. In each slum the first household for data collection was selected randomly and every household in the slum was visited until the required sample size was reached.

Each slum was taken as strata for data collection. Proportionate sample size and sampling interval for all the slums were calculated. Sampling interval was 4 for those 12 slums.

Proportionate sample size for each slum

$$= \frac{\text{18-24 years young married women in each slum} \quad X \quad \text{sample size}}{\text{Total 18-24 years young married women of all slum}}$$

$$\text{Sampling interval (k) (for each slum)} = \frac{\text{No of 18-24 years young married women in one slum}}{\text{proportionate sample size from that particular slum}}$$

Table -2- Proportionate sample size & Sampling interval (k) for 12 slums

Serial no	Name of the slum	Proportionate sample size from each slum	Sampling interval (k)
1	New Gandhinagar	161	4
2	Ram Nagar	60	4
3	Kasai Galli (Rukmini Nagar)	33	4
4	Gangwadi(Gandhinagar)	30	4
5	Gangwadi (Ahok Nagar)	26	4
6	Burudgalli(no1376, Nehru Nagar)	16	4
7	Chavatgalli	15	4
8	Builderchavni	13	4
9	Kanjikoravaraoni	12	4
10	Matangi Colony	10	4
11	Burudgalli	7	4
12	Kasaigalli (Auto Nagar)	7	4
Total		390	

A random number 'Three' (3) was chosen by lottery method. The study was started with 3rd house nearest to the UPHC and thereafter every 4th house was chosen as sampling interval was

4, till the complete sample size was obtained from that particular slum. If selected household had no participant satisfying the inclusion criteria, the next household was included in the study.

Inclusion Criteria: Young married females (18-24 years) currently residing in urban slums of Belagavi city for at least one year.

Exclusion Criteria: Women who are currently pregnant or had undergone hysterectomy/bilateral oophorectomy or are divorced /separated/disserted from their husband are excluded from the study.

Operational Definitions

Family planning services

It includes services that enable individuals to determine freely the number and spacing of their children and to select the means by which this may be achieved.[64]

Unmet need for spacing

Fecund women who are not menstruating nor pregnant, who do not use any contemporary family planning techniques for spacing, and who state that they would want to wait two years or longer for their next childbirth are included. Fecund women who do not use any contemporary family planning methods and claim they are not sure if they want another kid or that they want another child but are not sure when to have it are also included in the unmet requirement for spacing. [26]

Unmet need for limiting

It refers to fecund women who are neither pregnant nor amenorrhoeic, who are not using any modern limiting method of family planning, and who want no more children.[26]

Met need for modern contraceptive methods

Refers to those currently married women who want to space births or limit the number of children and are using modern contraceptive methods to avoid unwanted or mistimed pregnancies.[65]

Total demand for family Planning

The total demand for family planning is the sum of unmet need and met need.[65]

Data collection procedure:

While visiting the slums, we traced the young married women (18-24 years) who met the inclusion criteria and requested their informed consent to participate in the study after describing the study to them. The participant's full anonymity and confidentiality were respected. Written and full consent was obtained prior to the interview. Predesigned pre-structured pre- tested validated questionnaire was used to collect the data.

Data on socio-demographic characteristics of the participants such as age, literacy level, occupation, socio-economic status, knowledge, attitude & practice regarding family planning methods were obtained by a predesigned pre-structured pre- tested validated questionnaire through interview method after obtaining written informed consent of the participant.

Data processing and analysis/statistical analysis:

Collected data was entered using Microsoft Excel software and analysed in SPSS software. Frequencies and percentage were calculated for categorical data. Chi- square test was employed as the test of significance for categorical data. A p value of less than 0.05 was taken to be statistically significant.

Ethical Considerations:

Ethical clearance was obtained from the Institutional Ethics Committee (Ref No. MDC/JNMCIEC/42). Informed consent was obtained from each participant before collection of data.

Socio-economic status (SES)

The SES was classified based on the Modified B.G. Prasad's socioeconomic status classification, which considers the per-capita income in rupees as given below.[47]

I Upper class: 8763

II Upper middle-class: 4381.5 – 8675.3

III Middle class: 2630-4294

IV Lower middle-class: 1314.5 - 2541.27

V Lower class: <1314.5

Results

This Community based Cross-sectional study was conducted between April 2023 and March 2024 among 380 young married women residing in the urban slums of Belagavi city using validated questionnaires. Data was entered using Microsoft Excel software and analysed in SPSS software.

The results are presented under the following sections:

1) Socio-demographic details

2) Knowledge on family planning services

3) Prevalence of unmet need for family planning services

4) Factors influencing the unmet need for family planning services

5) Association between unmet need and other variables.

1) SOCIO-DEMOGRAPHIC DETAILS

1) Mean age

Table 3: Participants' age-based distribution (N= 380)

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C. I	
					Lower	Upper
Age (years)	22.61 ± 1.51	23.00	18.00	24.00	22.46	22.76

The mean and standard deviation of the age of the participants residing in the urban slums of Belagavi city was 22.61 ± 1.51 years.

2) **Religion**:

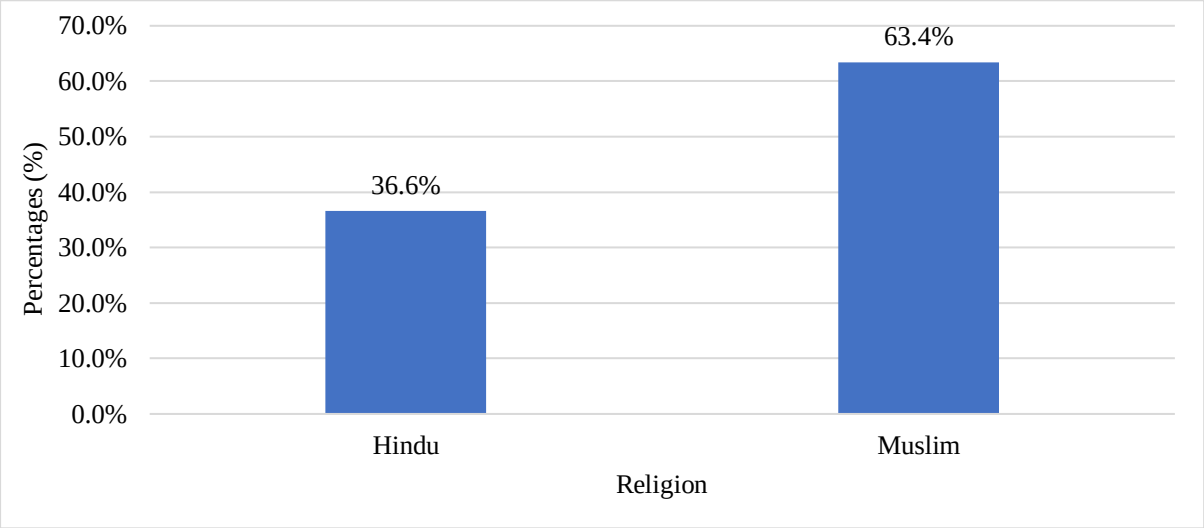
Table 4: Distribution of participants according to religion (N= 380)

Religion	Frequency	Percentages (%)
Hindu	139	36.58
Muslim	241	63.42
Total	380	100

Out of 380 participants from the urban slums of Belagavi city, 36.58% were Hindu and 63.42% were Muslim.

Over all most of the participants belong to Muslim community (63.42%).

Figure 2: Bar chart of distribution of participants according to religion (N= 380)



3) Education:

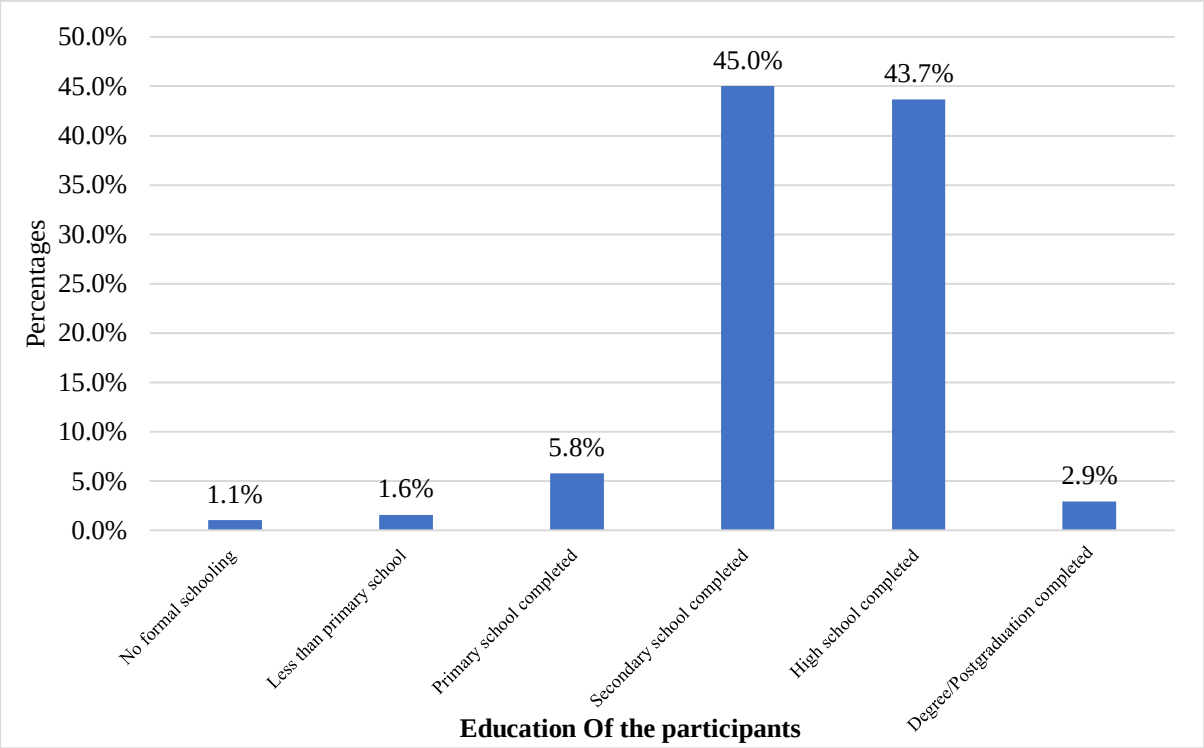
Table 5: Participants' distribution based on education (N= 380)

Education of the participants	**Frequency**	**Percentages**
No formal schooling	4	1.05%
Less than primary school	6	1.58%
Primary school completed	22	5.79%
Secondary school completed	171	45.00%
High school completed	166	43.68%
Degree/Postgraduation completed	11	2.89%
Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, 1.05% had no formal schooling, 1.58% had received less than primary school education, 5.79% completed primary school, 45% completed secondary school, 43.68% completed high school, 2.89% had graduation /postgraduation degree.

Over all most of the participants had completed secondary school (171, 45%).

Figure 3: Bar chart of Distribution of participants according to education (N= 380)



4) Participants' husband's Education

Table 6: Distribution of participant's husband based on Education (N= 380)

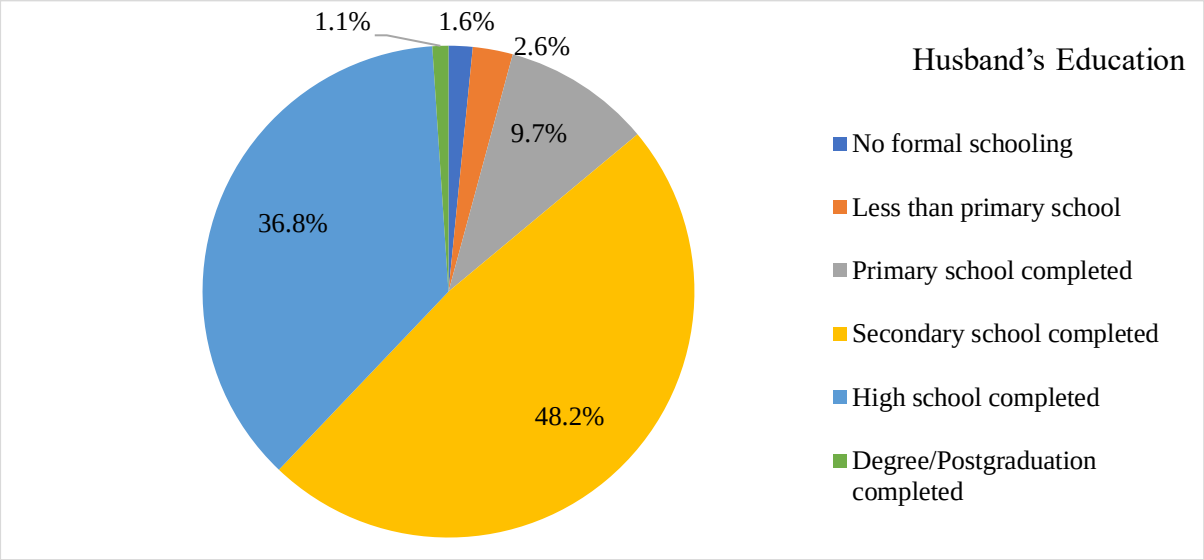
Husband's Education	**Frequency**	**Percentages**
No formal schooling	6	1.58%
Less than primary school	10	2.63%
Primary school completed	37	9.74%
Secondary school completed	183	48.16%
High school completed	140	36.84%

Degree/Postgraduation completed	4	1.05%
Total	380	100%

Out of 380 participants' spouse from the urban slums of Belagavi city, 1.58% had no formal schooling, 2.63% had received less than primary school education, 9.74% completed primary school, 48.16% completed secondary school, 36.84% completed high school, 1.05% had graduation /postgraduation degree.

Over all most of the participants' spouse completed secondary school (183, 48.16%)

Figure 4: Pie chart of Distribution of participant's husband based on Education (N= 380)



5) Occupation (participants)

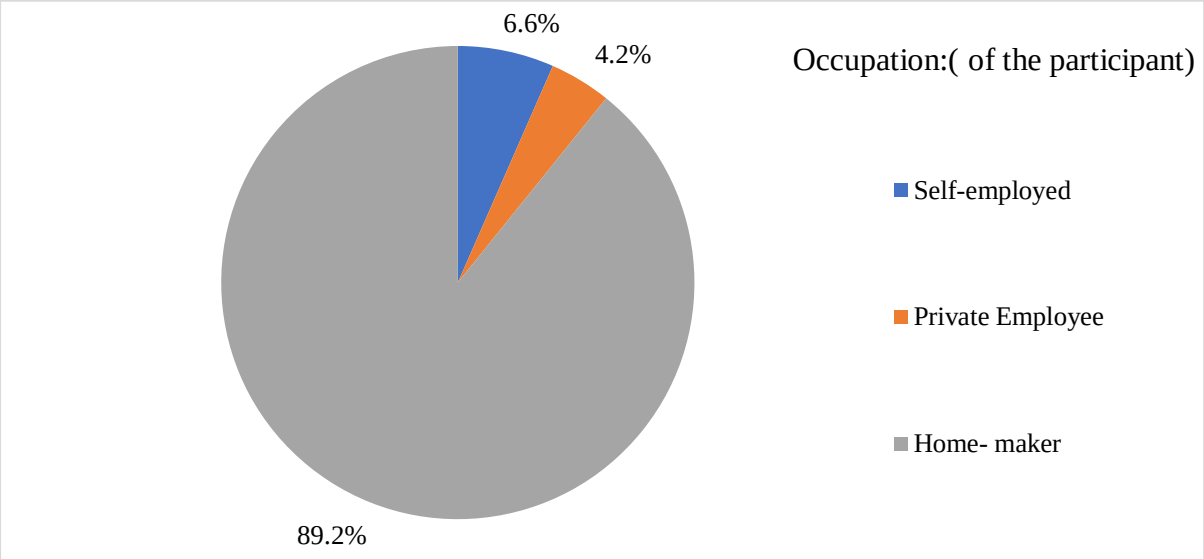
Table 7: Distribution of participants based on Occupation (N= 380)

Occupation:(of the participant)	**Frequency**	**Percentages**
Self-employed	25	6.58%
Private Employee	16	4.21%
Home- maker	339	89.21%
Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, most of the participants were home-maker (89.21%), on the other hand 6.58% were self-employed and 4.21% were private employee.

Over all most of the participants were home-maker (89.21%).

Figure 5: Pie chart of Distribution of participants based on Occupation (N= 380)



6) Family Type:

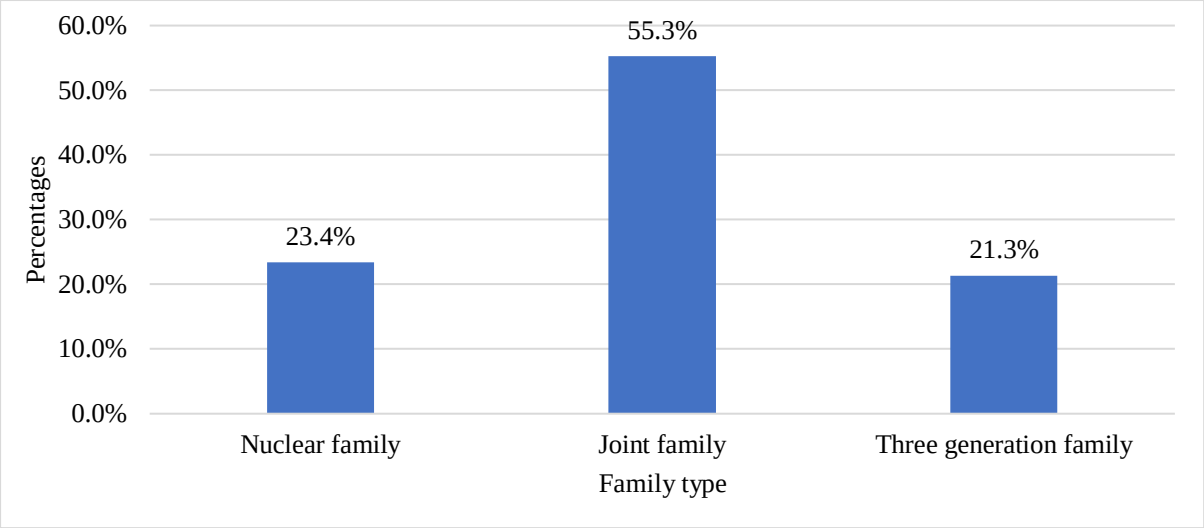
Table 8: Distribution of participants according to family type

Type of family	**Frequency**	**Percentages**
Nuclear family	89	23.42%
Joint family	210	55.26%
Three generation family	81	21.32%
Total	380	100%

Out of 380 participants residing in the urban slums of Belagavi city, 23.42% lived in nuclear family, 55.26% lived in joint family ,21.32% lived in three-generation family.

Overall, most of the participants were living in joint family (210, 55.26%).

Figure 6: Bar chart of Distribution of participants according to family type



7) Socio-economic class:

Table 9: Distribution of participants according to Socio-economic Class

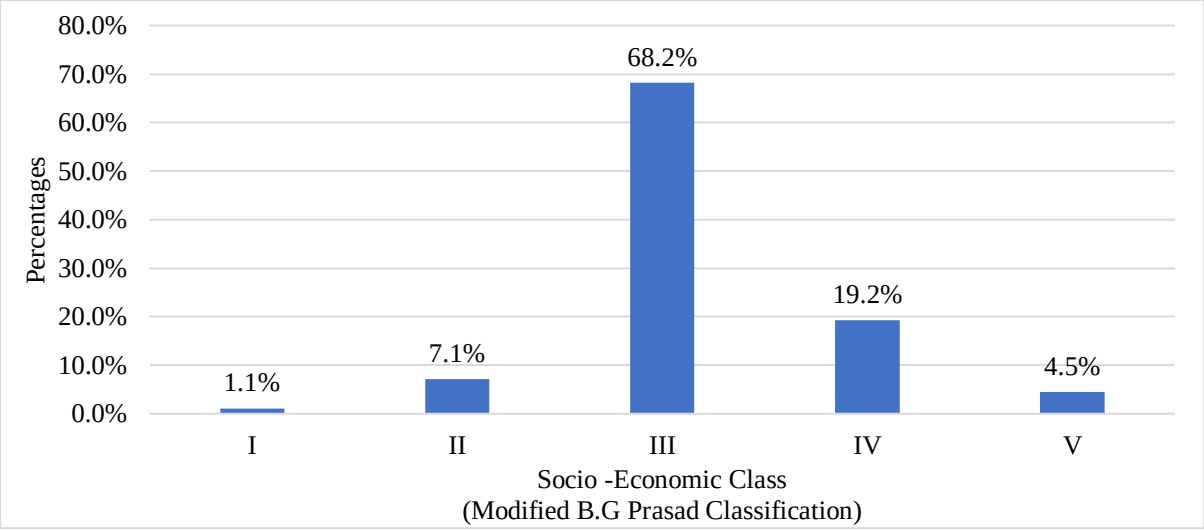
Socio -Economic Class (Modified B.G Prasad Classification)	**Frequency**	**Percentages**
I	4	1.05%
II	27	7.10%
III	259	68.16%
IV	73	19.21%
V	17	4.47%
Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, 1.05% belonged to Class I, 7.10% belonged to Class II, 68.16% belonged to Class III, 19.21% belonged to Class IV,

4.47% belonged to Class V according to Modified B.G. Prasad's Socio-economic status classification.

Overall, most of the study participants belonged to Class III (259,68.16%), based on Modified B.G. Prasad's Socio-economic status classification.

Figure 7: Bar chart of Socio-economic Class



8) Participant's Age at marriage

Table 10: Distribution of participants based on age at marriage

Parameter	Mean ± SD	Median	Minimum	Maximum
Age at marriage (in years)	18.52 ± 1.58	18.00	15.00	24.00

The mean and standard deviation of the age at marriage of the participants residing in the urban slums of Belagavi city is 18.52 ± 1.58 years.

9) Number of children

Table 11: Distribution of participants based on number of children

Total number of children at present	Frequency	Percentages
0	24	6.32%
1	148	38.95%
2	151	39.74%
3	55	14.47%
4	2	0.53%
Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, 6.32% had no children, 38.95% had only one child, 39.74% study participants had two children, 14.47% had three children, 0.53% had four children.

Overall, most of the study participants had two children (151, 39.74%)

2) Knowledge on family planning services

10) Family planning health education before marriage

Table 12: Distribution of participants based on Family planning health education before marriage (N= 380)

Family planning health education before marriage	Frequency	Percentages

Yes	1	0.26%
No	379	99.74%
Total	380	100%

Out of 380 participants residing in the urban slums of Belagavi city, 0.26% had gotten health education on family planning before marriage, whereas 99.74% did not get health education on family planning before marriage.

Overall, most of the study participants did not get family planning health education before marriage (379, 99.74%).

11) Prevalence of Knowledge on family planning method.

Table 13: Distribution of participants based on their knowledge on family planning method

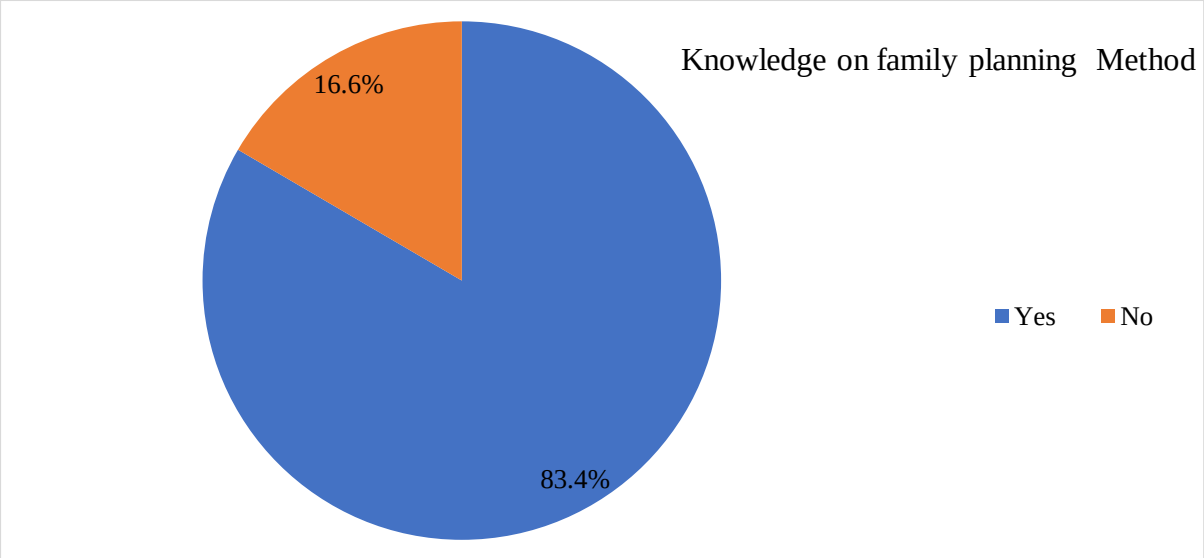
Knowledge on family planning method	Frequency	Percentages
Yes	317	83.42%
No	63	16.58%

Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, 83.42% had knowledge about at least one family planning method and 16.58% had no knowledge regarding family planning method.

Over all, most of the study participants had knowledge on family planning method (317, 83.42%).

Figure 8: Pie chart of Distribution of participants based on their knowledge on family planning method (N=380)



12) Knowledge on different types of on family planning methods

Table 14: Distribution of participants based on knowledge on types of on family planning methods (N=380)

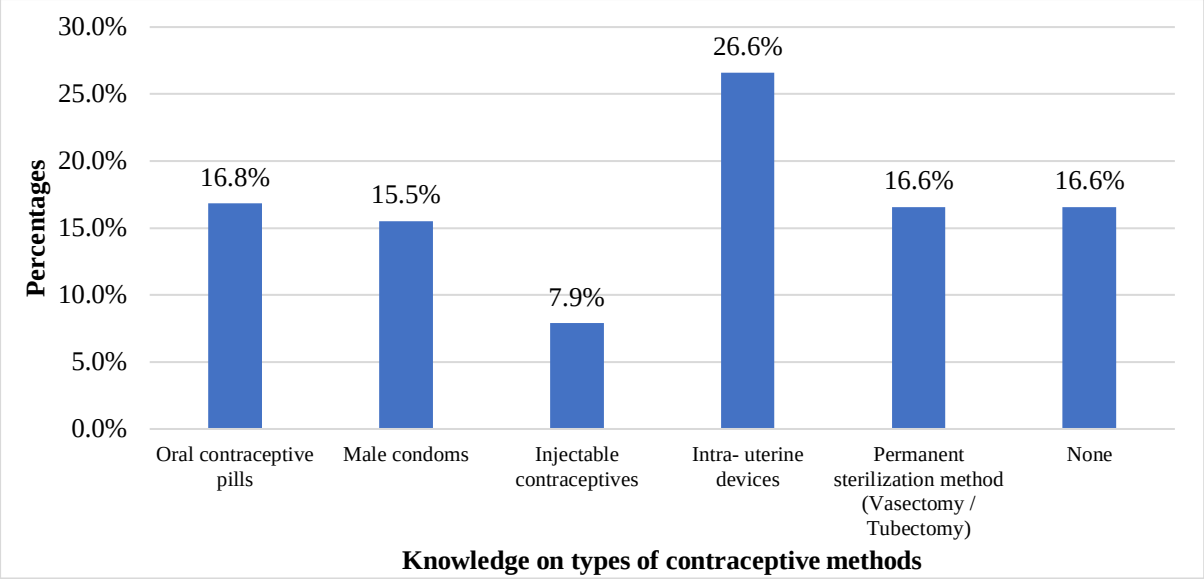
Knowledge on types of contraceptive methods	Frequency	Percentages
Oral contraceptive pills	64	16.84%

Male condoms	59	15.53%
Injectable contraceptives	30	7.89%
Intra- uterine devices	101	26.58%
Permanent sterilization method (Vasectomy / Tubectomy)	63	16.58%
None	63	16.58%
Total	380	100%

Out of 380 participants from the urban slums of Belagavi city, 16.84% had knowledge about Oral contraceptive pills, 15.53% had knowledge about male condoms, 7.89% had knowledge about Injectable contraceptives, 26.58% had knowledge about Intra- uterine devices, 16.58% had knowledge about Permanent sterilization method, 16.58% had no knowledge about any of the contraceptive methods.

Overall, most of the study participants were aware of Intra- uterine devices (101, 26.58%).

Figure 9: Bar chart of Distribution of participants based on knowledge on types of family planning methods (N=380)



13) Source of information on Family planning methods

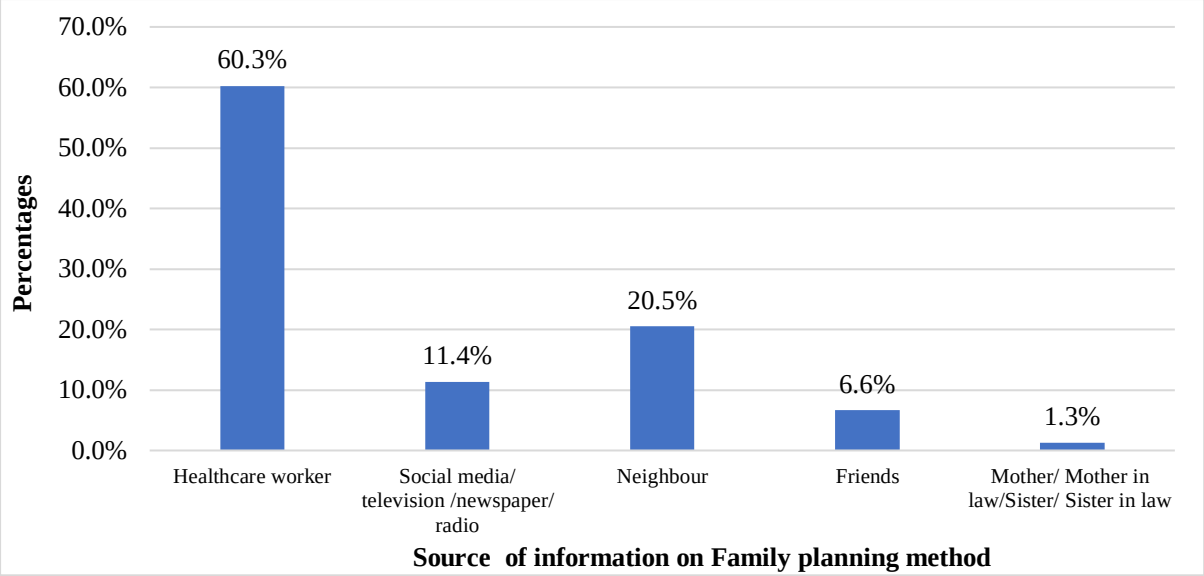
Table 15: Distribution of participants based on Source of information on Family planning methods (N=380)

Source of information on family planning method	Frequency	Percentages
Healthcare worker	191	60.25%
Social media/ television /newspaper/ radio	36	11.36%
Neighbour	65	20.50%
Friends	21	6.62%
Mother/ Mother- in - law/Sister/ Sister- in- law	4	1.26%
Total	380	100%

Of the 380 participants who lived in the urban slums of Belagavi city, 60.25% cited healthcare workers as their primary source of information about family planning services, 11.36% cited social media, television, newspapers, or radio, 20.50% cited their neighbours, 6.62% cited their friends, and 1.26% cited their mother, mother-in-law, sister-in-law, or sister-in-law.

Overall, for most of the study participants, healthcare workers were the source of information on family planning services for (191, 60.25%)

Figure 10: Bar chart of Distribution of participants based on source of information on Family planning methods (N=380)



3) Prevalence of unmet need for family planning services

14) Unmet need for Family planning services

Table16: Prevalence of unmet need for Family planning services among the study participants (N=380)

Prevalence of Unmet need for Family planning services	Frequency	Percentages
Met need	174	45.79%
Unmet need	206	54.21%
Total	380	100%

During the interview period, 45.79% of the 380 participants who lived in Belagavi City's urban slums used at least one form of family planning or contraception. At the time of the interview, 54.21% did not use any form of family planning or contraception.

At the time of the interview, the majority of study participants (206, 54.21%) did not use any form of family planning or contraception.

The unmet need for contraceptive// family planning services among the study participants was 54.21%.

Figure 11: Pie chart of prevalence of Unmet need for Family planning services among the study participants (N=380)

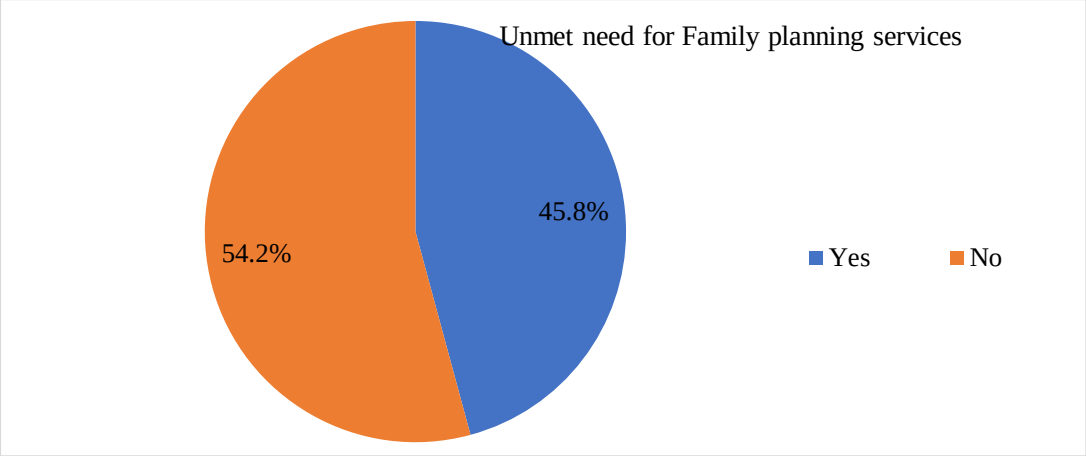


Table 17: Descriptive analysis of unmet need in the study population (N=206)

Unmet Need	Frequency	Percentages
Spacing	134	65.05%
Limiting	72	34.95%

Out of 206 participants residing in the urban slums of Belagavi city who were having unmet need for contraception, 65.05% (134) were having unmet need for spacing and 34.95% (72) were having unmet need for limiting.

Overall majority of the study participants had unmet need for spacing (65.05%).

15) Types of Family planning methods used by the participants

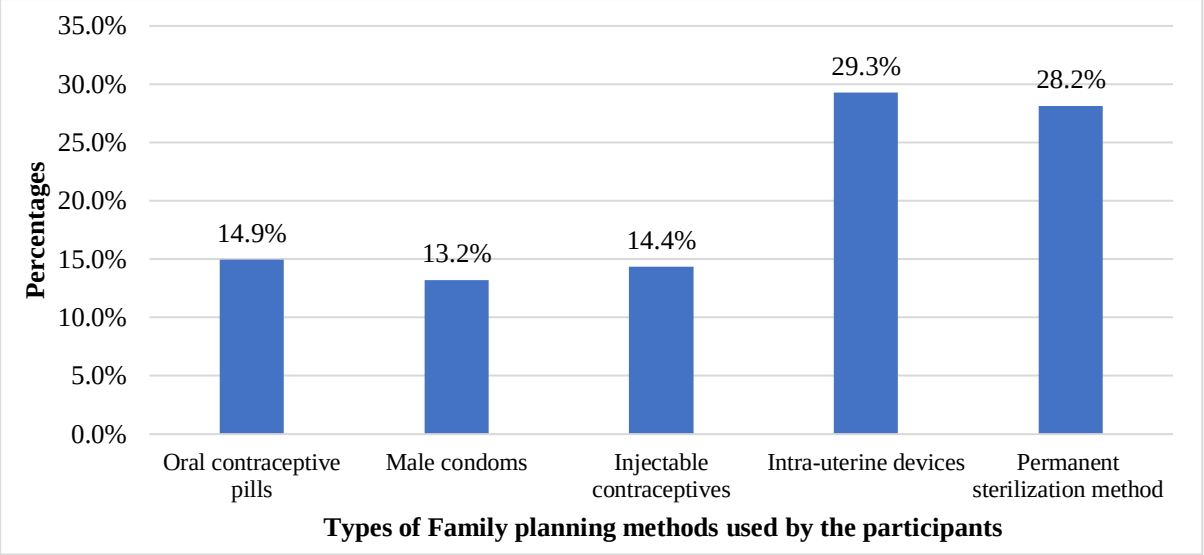
Table 18: Distribution of participants based on the type of Family planning methods used by them (N=174)

The Family planning methods used by the participants	Frequency	Percentages
Oral contraceptive pills	26	14.94%
Male condoms	23	13.22%
Injectable contraceptives	25	14.37%
Intra-uterine devices	51	29.31%
Permanent sterilization method	49	28.16%
Total	174	100%

Out of 174 participants who were currently using family planning methods residing in the urban slums of Belagavi city, 14.94% were using Oral contraceptive pills, 13.22% were using Male condoms, 14.37% were using Injectable contraceptives, 29.31% were using Intra-uterine devices, 28.16% were using Permanent sterilization method.

Overall, most of the study participants were using Intra-uterine devices (51, 29.31%)

Figure 12: Bar chart based on the type of Family planning method used by the participants (N= 174)



4) Factors influencing the unmet need for family planning services

17) Reasons for not using any family planning method ever

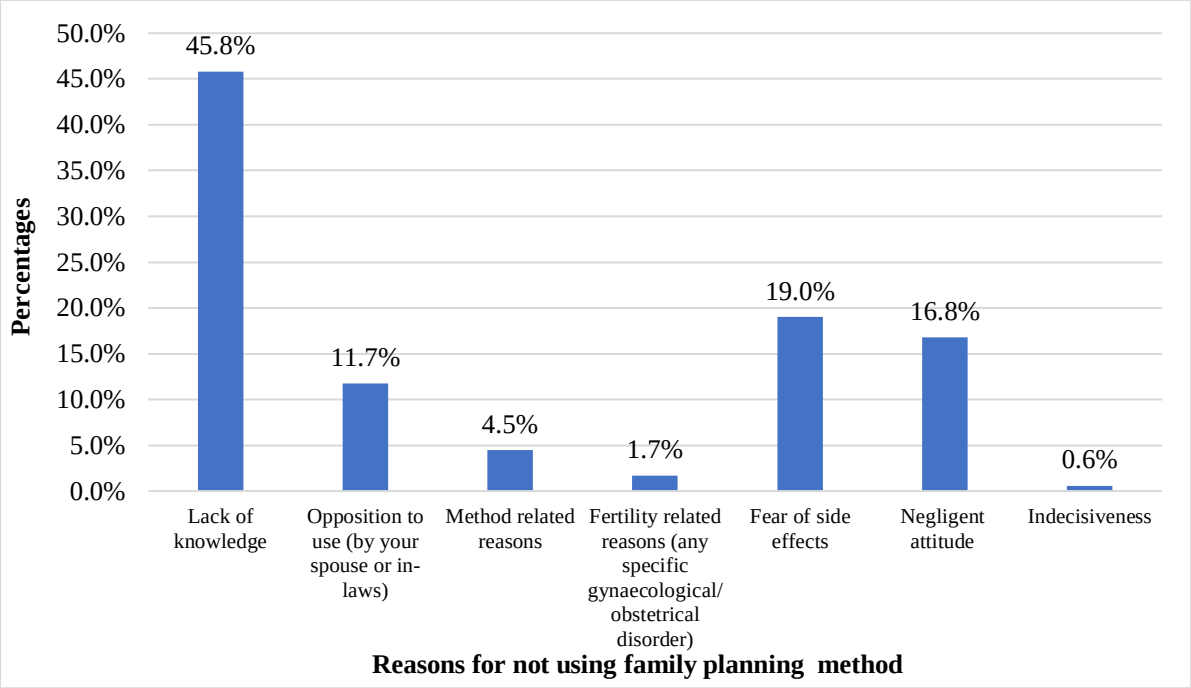
Table 19: Distribution of participants based on the reasons for not using family planning method (N=179)

Reasons for not using family planning method	Frequency	Percentages
Lack of knowledge	82	45.81%
Opposition to use (by spouse or in-laws)	21	11.73%
Method related reasons	8	4.47%
Fertility related reasons (any specific gynaecological/ obstetrical disorder)	3	1.68%
Fear of side effects	34	18.99%
Negligent attitude	30	16.76%
Hesitancy	1	0.56%
Total	179	100%

A total of 179 participants who had never used any form of family planning or contraception in urban slums of Belagavi city gave a variety of explanations for their non-use. 45.81% never used due to lack of knowledge, 11.73% never used due to resistance from their spouse or in-laws, 4.47% never used due to method-related reasons, 1.68% for fertility-related reasons, 18.99% for fear of side effect, 16.76% for negligent attitudes towards family planning methods, and 0.56% for hesitancy.

In general, lack of knowledge was the most often stated excuse for not utilising any kind of family planning method (82, 45.81%).

Figure 13: Bar chart of participants based on the reasons for not using family planning method (N=179)



5) Association between unmet need and other variables

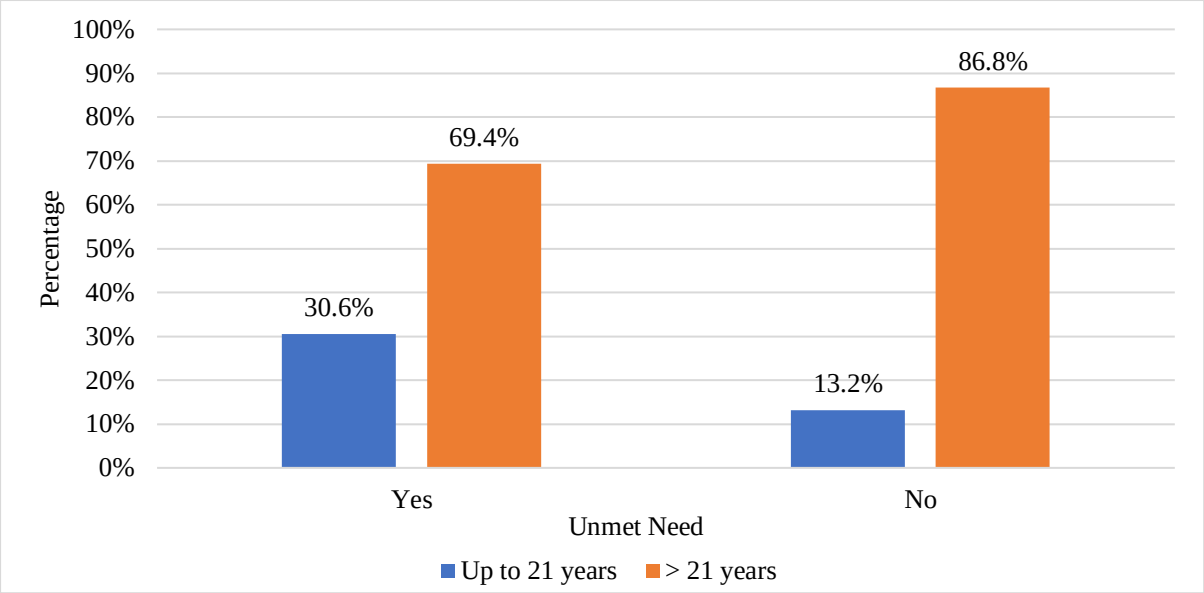
17) Association between age of the participant and unmet need

Table 20: Comparison of unmet need & age

			Unmet		Total	Chi square	P value
			Yes	No			
Age group	Up to 21 years	Count	63	23	86	16.243	<0.001
		% within Unmet	30.6%	13.2%	22.6%		
	> 21 years	Count	143	151	294		
		% within Unmet	69.4%	86.8%	77.4%		

The table shows a significant association (p value <0.001) between age and unmet needs for family planning services. Younger individuals (≤ 21 years) have a higher proportion of unmet needs (30.6%) as compared to older individuals (>21 years).

Figure 14: Cluster bar chart of comparison of age group between unmet need (N=380)



18) Association between participants religion and unmet need

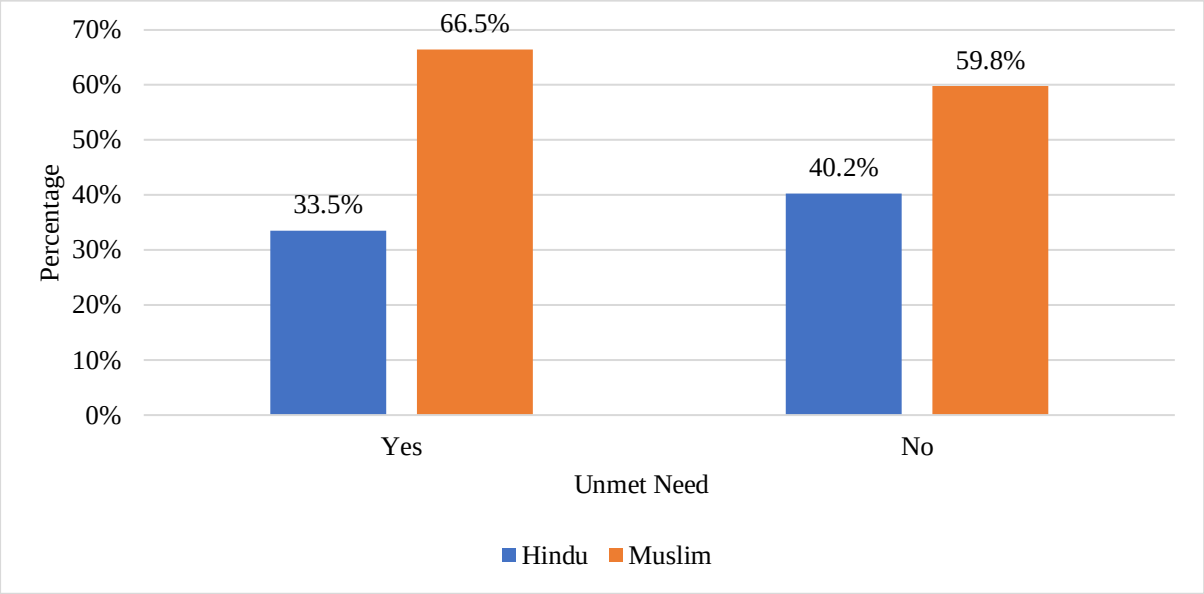
Table21: Comparison of unmet need & religion

			Unmet Need		Total	Chi square	P value
			Yes	No			
Religion	Hindu	Count	69	70	139	1.884	0.174
		% within Unmet Need	33.5%	40.2%	36.6%		
	Muslim	Count	137	104	241		
		% within Unmet Need	66.5%	59.8%	63.4%		

This table indicates that there is no statistically noteworthy correlation between religion and unmet need for family planning services (p value > 0.05). The unmet need for family

planning services among Hindus was 33.5% whereas among Muslim females it was found to be 66.5%.

Figure 15: Cluster bar chart of comparison of religion between unmet need (N=380)



19) Association between level of education of the participants and unmet need

Table 22: Comparison of unmet need & level of education

			Unmet Need		Total	Chi square	P value
			Yes	No			
Education (of the participant)	No formal schooling	Count	2	2	4	7.139	0.211
		% within Unmet Need	1.0%	1.1%	1.1%		
	Less than primary school	Count	6	0	6		
		% within Unmet Need	2.9%	0.0%	1.6%		
	Primary school completed	Count	11	11	22		
		% within Unmet Need	5.3%	6.3%	5.8%		
	Secondary school completed	Count	96	75	171		
		% within Unmet Need	46.6%	43.1%	45.0%		
	High school completed	Count	87	79	166		
		% within Unmet Need	42.2%	45.4%	43.7%		
	College/ University/postgraduation completed	Count	4	7	11		
		% within Unmet Need	1.9%	4.0%	2.9%		

This table indicates that there is no noteworthy correlation between level of education of the participants and unmet need for family planning services (p value > 0.05).

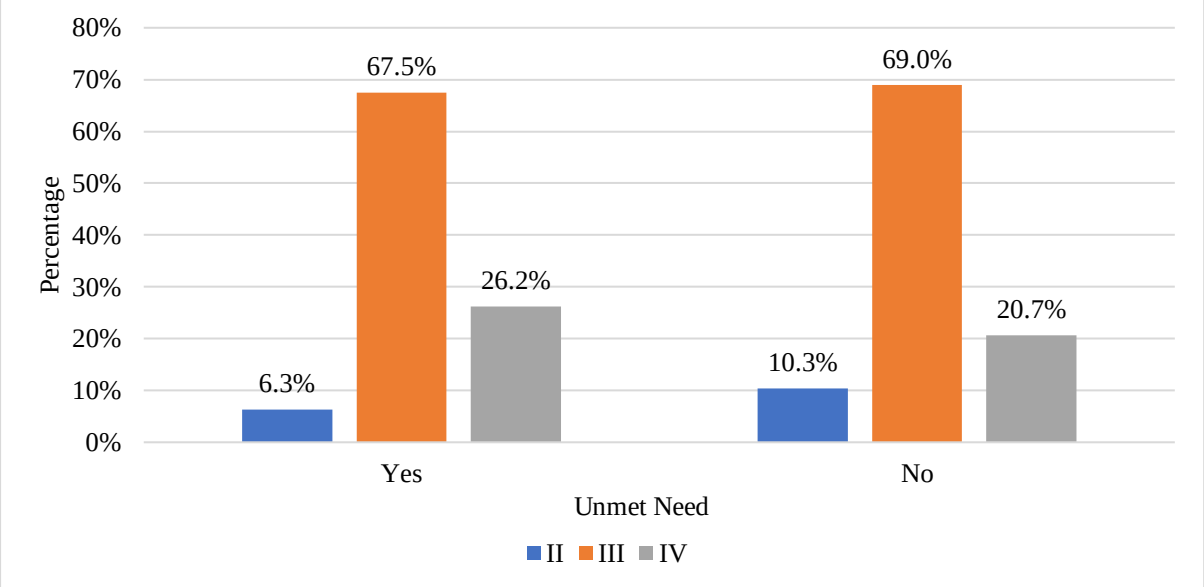
20) Association between Socio-economic status of the participants and unmet need

Table 23: Comparison of unmet need & socioeconomic status

Socio -economic class (Modified B.G Prasad classification)		Unmet Need		Total	Chi square	P value
		Yes	No			
II	Count	13	18	31	3.128	0.209
	% within Unmet Need	6.3%	10.3%	8.2%		
III	Count	139	120	259		
	% within Unmet Need	67.5%	69.0%	68.2%		
IV	Count	54	36	90		
	% within Unmet Need	26.2%	20.7%	23.7%		

This table indicates that there is no statistically significant correlation between socio-economic class and unmet family planning need (p value > 0.05). unmet need for family planning services was higher (67.5%) among participants from class III socio-economic status (**Modified B.G Prasad classification)**

Figure 16: Cluster bar chart of comparison of socio -economic status (modified B.G prasad classification) between unmet need (N=380)



21) Association between number of pregnancies & unmet need

Table 24: Comparison of unmet need & number of pregnancies

No. of pregnancies		Unmet Need		Total	Chi square	P value
		Yes	No			
0	Count	13	10	23	29.215	<0.001
	% within Unmet Need	6.3%	5.7%	6.1%		
1	Count	89	34	123		
	% within Unmet Need	43.2%	19.5%	32.4%		
2	Count	64	66	130		
	% within Unmet Need	31.1%	37.9%	34.2%		
3	Count	32	54	86		
	% within Unmet Need	15.5%	31.0%	22.6%		
4	Count	8	9	17		
	% within Unmet Need	3.9%	5.2%	4.5%		
5	Count	0	1	1		
	% within Unmet Need	0.0%	0.6%	0.3%		

The table shows a significant association (p value <0.001) between parity and unmet needs for family planning services. The unmet need is significantly higher among women who had become pregnant one or more than once as compared to nulliparous women. Multiparous women are having a higher unmet need (31.1%) as compared to nulliparous women (6.3%).

22) Number of live births & Contraceptive method

Table 25: Comparison of Contraceptive method & number of live births

Contraceptive method		Total no. live births				Total	Chi square	P value
		0 (no birth)	1	2	3			
Oral contraceptive pills	**Count**	**0**	**0**	**4**	**1**	**5**	21.316	0.011
	% within Total no. live births	0.0%	0.0%	33.3%	100.0%	18.5%		
Male condoms	Count	1	11	1	0	13		
	% within Total no. live births	100.0%	84.6%	8.3%	0.0%	48.1%		
Emergency contraceptives	Count	0	0	3	0	3		
	% within Total no. live births	0.0%	0.0%	25.0%	0.0%	11.1%		
Intra- uterine devices	Count	0	2	4	0	6		
	% within Total no. live births	0.0%	15.4%	33.3%	0.0%	22.2%		

The association between number of live births and type of contraceptive method used by the participants were found to be statistically significant.

If number of live births were >/= 2, then, oral contraceptive pill was the most commonly used method by the participants followed by intra-uterine devices. Among nulliparous women male condom was the most preferred method.

23) Spousal motivation/agreement and unmet need

Table 26: Comparison of unmet need & spousal motivation

Spousal motivation/agreement		Unmet Need		Total	**Chi square**	**P value**
		Yes	No			
Yes	Count	108	132	240	22.63	<0.001
	% within Unmet Need	52.4%	75.9%	63.2%		
No	Count	98	42	140		
	% within Unmet Need	47.6%	24.1%	36.8%		

The table shows a significant association (p value <0.001) between Spousal motivation and unmet need for family planning services. Spousal motivation was inversely associated with unmet need. The unmet need for family planning services was comparatively lesser among those participants who were motivated by their spouse to use family planning method.

Women with husband having a favourable attitude towards family planning were found to be less likely to have an unmet need as compared to women whose husband had an unfavourable attitude.

24) Contacts with health care worker and unmet need

Table 27: Comparison of unmet need & contacts with health care worker

contacts with health care worker		Unmet Need		Total	**Chi square**	**P value**
		Yes	No			
Healthcare worker	Count	56	135	191	59.81	<0.001
	% within Unmet Need	39.2%	77.6%	60.3%		

The table demonstrates a substantial correlation (p value <0.001) between unmet family planning service needs and interactions with health care workers. Unmet need was inversely correlated to interactions with health care workers. The likelihood of an unmet need was higher among participants who did not have contact with a health care worker than among those who did.

25) Media exposure and unmet need

Table 28: Comparison of unmet need & Media exposure

Media exposure		Unmet Need		Total	**Chi square**	**P value**
		Yes	No			
Social media/ television /newspaper/ radio	Count	26	10	36	59.81	<0.001
	% within Unmet Need	18.2%	5.7%	11.4%		

There is a statistically significant correlation between media exposure and unmet family planning service needs (p value <0.001). Media-exposure was inversely associated with unmet need participants who had media exposure through social media/ television /newspaper/ radio on family planning services had lower unmet need (5.7%) as compared to those who did not have media exposure (18.2%)

26) Free of cost services for family planning methods & unmet need

Table 29: Comparison of unmet need & knowledge about free of cost services for family planning methods

Knowledge about Free of cost services for family planning methods		Unmet Need		Total	**Chi square**	**P value**
		Yes	No			
Yes	Count	48	154	202	161.06	<0.001
	% within Unmet Need	23.3%	88.5%	53.2%		
No	Count	158	20	178		
	% within Unmet Need	76.7%	11.5%	46.8%		

There was a statistically significant correlation (p value <0.001) between unmet family planning service needs and knowledge of free family planning services. Women who were aware of the locations where free family planning services are provided or who were aware about free of cost contraceptive services were less likely to have unmet needs than those who were unaware of these services.

Discussions

The present cross-sectional study carried out between April 2023 and March 2024 among 380 young married women residing in the urban slums of Belagavi city, to assess the unmet need for family planning services and to determine the factors influencing the unmet need for family planning services among young married women (18-24 years) residing in urban slums of Belagavi city and to compare the relationship between unmet need and its' various predictors among young married women (18-24 years) residing in urban slums of Belagavi city.

1) Socio-demographic variables

Table 3: Participants' age-based distribution (N= 380)

In the present study, the mean ± standard deviation of the age of the participants residing in the urban slums of Belagavi city was 22.61 ± 1.51 years.

A study conducted by Yadav et al.[34] showed that the mean age of the study participants was 21.28 ± 1.9 years.

Table 4: Distribution of participants according to Religion (N= 380)

In the present study, the Muslim participants (63.42%) were the majority. Though according to various studies Hindu is the major religion in India.

Studies conducted by Anil et al.[31], Pawar et al[48] found that majority of the study participants were Hindus.

According to census 2011 Muslim constitutes 11% of total population in Belagavi district.[49]

Table 5: Distribution of participants according to Education (N= 380)

In the present study, most of the participants had completed till Secondary school (45%).

This is in accordance with the study by Khuda et al.[33] who had a similar result of education till secondary school (82.2%).

However, in a country like India the education status vary widely depending on the area, and other socio-economic and cultural factors.

Table 6: Distribution of participants based on their Spousal education (N= 380)

In the present study, most of the participants' husband had completed till Secondary school (45%).

This is in line with the studies done by Khuda et al.[33], where the majority (84.4%) of the study participants' husband had secondary level of education or completed high school. However, depending on the region as well as other socioeconomic and cultural aspects, the level of education varies greatly in India.

This finding was helpful for us to understand the association between unmet need for family planning services and spousal agreement.

Table 7: Distribution of participants based on Occupation (N= 380)

In the current study, most of the study participants were home-maker (89.21%). Again, this varies widely in various studies.

A study done by Khuda et al.[33] who had similar result where the majority of the participants were homemaker (89.6%). We can surmise that since the study participants in the present study

were female and in a country like India married women are given the role of housewife/homemaker, the major occupation is homemaker.

Table 8: Distribution of participants according to Family type

In the present study, most of the study participants were living in Joint family (55.26%). This varies in different studies.

However, this result can be understood with the background that in slum areas most of the population belong to lower income class, so to take care of their families or due to various socio-economic reasons they live in joint family. Though there is a rising trend of nuclear families, one-child norm etc in urban areas.

Table 9: Distribution of participants according to Socio-economic class

In the present study, the majority of the participants belonged to Class III (68.16%) according to Modified B.G. Prasad's socio-economic status classification.[47]

A study done by Pegu et al[53] found that majority of the study population belong to

low socio - economic status (31.5%).

Different studies have used different classification systems for assessing the socio-economic status. However, majority participants belong to middle class with a monthly per-capita income of 2630-4294 rupees, as comparable in different classification systems.

Table 10: Distribution of participant's according to age at marriage (in years) (N=380)

In the present study the mean age at marriage of the participants residing in the urban slums of Belagavi city was 18.52 ± 1.58 years.

This is in line with the study by Raj T P et al[59] where the mean age at marriage was found to be 17.4 years.

In India legal age for marriage is 18 years for girls according to The Provision of Child Marriage Act, 2006.[50]

Table 11: Distribution of participants based on number of children

In the present study, most of the study participants had two children (39.74%)

This is in line with the study done by Khuda et al.[33] where most of the respondents had two children (41%).

The two-child norm is promoted by India's numerous population control measures.

2) Knowledge on family planning services

Table 12: Distribution of participants based on Family planning health education before marriage (N= 380)

It is essential for a couple to get family planning health education before to marriage, in order to prevent sexually transmitted diseases, identify possible reproductive or genetic problems, and maintain a healthy relationship.

Couples can get the knowledge and assistance they need to make well-informed decisions on the size and spacing of their families through premarital health education and family planning counselling.

In the current study, most of the study population did not get any health education before they got married (99.74%) and this can be explained by the fact that lack of opportunities, education in slum areas and social stigma so that couples do not opt for premarital family planning education.

This finding is in accordance with the study done by Yadav et al[34] where prior to marriage, none of the young married ladies had any contraception education.

Table 13: Distribution of participants based on their knowledge on family planning method

In the present study, most of the participants had knowledge on family planning method (83.42%).

This finding is in accordance with the study done by Singh et al.[51] where majority of respondents (88.8%) were aware of at least one family planning method.

Table 14: Distribution of participants based on knowledge on types of on family planning methods (N=380)

In this study, most of the study population had knowledge about intra- uterine devices (101, 26.58%), followed by oral contraceptive pills (16.84%), permanent sterilization method (16.58%), male condoms (15.53%), injectable contraceptives (7.89%).

This finding is consistent with the study done by Daya A et al.[52] where among the participants, the most known method of contraception was IUD (56%) followed by permanent sterilization (38%), Pills (21%) and Condoms (14%).

A study carried out by Singh et al.[51] found that the majority of participants were aware of condoms (82%) followed by sterilization (80.7%), oral contraceptive pills (OCPs) (79.3%), intra-uterine contraceptive devices (68.7%), safe period method (47.3%), injection depot medroxyprogesterone acetate (DMPA) (42.7%).

Table 15: Distribution of participants based on Source of information regarding Family planning methods (N=380)

In the present study the major source of information regarding contraceptives/ family planning methods were Healthcare worker (60.25%) followed by neighbours (20.50%), Social- media/ television /newspaper/ radio (11.36%) and friends and family members.

This is in line with the study done by Pegu et al[53] where major source of knowledge regarding contraceptives were health worker (58.6%) followed contraceptives were health worker (58.6%) followed by media 24.1%, social-circle 15.5% and others.

3) Prevalence of unmet need for family planning services

Table16: Prevalence of unmet need for Family planning services among the study participants (N=380)

According to the current study, 54.21% of participants had unmet needs for family planning services.

54.21% of people did not use any form of family planning or contraception, while 45.79% used at least one method.

This finding aligns with a study conducted by Pal et al[56] which indicated that, of married women in the reproductive age range, 53.1% had unmet needs.

Similar finding was seen in the study done by Yadav et al.[34] where the unmet need for contraception among young married women was 55.3%.

A study done by Begum S.et al[39] found that 40.6% of married women in their reproductive age group had an unmet family planning need.

These findings draw attention to a recurring difficulty in meeting family planning needs, specifically in guaranteeing access to and use of family planning methods. Despite the availability of family planning techniques, unmet requirements may result from a number of circumstances, including cultural and economic limitations. To address these unmet requirements and advance improved reproductive health outcomes, it is critical to enhance information, accessibility, and support networks, as seen by the large percentage of participants who do not use any kind of family planning methods.

Table 17: Descriptive analysis of unmet need in the study population (N=206)

According to the current study, majority of the study participants had unmet need for spacing (65.05%).

This finding is in accordance with the study done by Shukla M.et al[63] where more than half of the young married women living in the slums were having an unmet need for family planning, of which 40.9% was for spacing and 14.4% for limiting.

This is likely due to a combination of factors, including limited access to family planning services, socio-economic challenges, and lack of awareness. The high percentage of unmet need for spacing in both studies underscores the importance of addressing these barriers through improved access to family planning services, education, and awareness programs.

Table 18: Distribution of participants based on the type of Family planning methods used by them (N=174)

In this present study, Intra-uterine device (29.31%) is the most widely used method of family planning among the study participants, followed by permanent sterilization method (28.16%), Oral contraceptive pills (14.94%), injectables (14.37%), condoms (13.22%).

According to a study by Singh Y R et al.[51], participants most frequently used oral contraceptive tablets. OCPs accounted for 17.7% of all methods utilised for family planning, with condoms (10.7%), depot medroxyprogesterone acetate (DMPA) (10.3%), and IUCD (10%) following closely behind.

According to a study by Anil D. et al.[31], IUCD was the most widely used method of family planning for spacing.

This can be explained by the close proximity of urban slums to the UPHC and contact with the Healthcare personal so that they have better knowledge.

4) Factors influencing the unmet need for family planning services

Table 19: Distribution of participants based on the reasons for not using family planning method (N=179)

In this study, reasons cited for not using family planning methods were lack of knowledge (45.81%), fear of side effects (18.99%), negligent attitudes towards family planning methods (16.76%), opposition to use by spouse or in-laws (11.73%), method related reasons (4.47%), fertility related reason, hesitancy/shyness etc.

A study done by Prasanna K et al[37] highlighted the factor which was mostly influencing the unmet demand for family planning services was lack of knowledge (46.5%) followed by post-partum amenorrhoea (25.4%), preference for a male child (4.2%).

The finding of this study also is line with the research done by Yadav et al.[34] where the embarrassment, hesitancy, or shyness about using contraceptives (69.2%) careless attitude towards family planning (48.5%), resistance from their husbands or other family members (45.6%), a lack of knowledge about the FP method, were all significant reasons given for the unmet demand for family planning services. Fear of adverse effects and health concerns were commonly mentioned as method-related factors.

5) Association between unmet need and other variables

Table 20: Comparison of unmet need and age

In the present study, it was found that there was a noteworthy correlation (p value <0.001) between age and unmet needs for family planning services. Younger individuals (≤ 21 years) had a higher proportion of unmet needs (30.6%) as compared to older individuals (>21 years).

This result is in accordance with the research done by Kennedy E et al[57] in which the majority of the women in the 15–19 age range had unmet family planning needs. It was discovered that a decrease in unmet demand was significantly correlated with an increase in age group. Compared to women in the 20–24 age range, women in the 15–19 age range were around three times as probably to have an unmet demand.

Compared to adult women, adolescent women use contraception less frequently, know less about family planning, and have less access to information and services because of hesitancy or shyness or embarrassment

Table21: Comparison of unmet need & religion

In the present study, there was no significant correlation between religion and unmet needs for family planning services as p value > 0.05. The unmet needs for family planning services among Hindus was 33.5% whereas among Muslim females it was found to be 66.5%.

This finding implies that access to or use of family planning services may be more influenced by other variables other religion alone.

This finding is in line with the study done by Rawat S. et al[58] in which, there is no discernible correlation between religion and unmet needs for family planning services reaffirming the

notion that, religion might not be the main factor influencing family planning requirements or decisions.

Table 22: Comparison of unmet need & level of education of the participants

In the present study, there was no statistically significant correlation between level of education of the participants and unmet need for family planning services (p value > 0.05).

The lack of correlation in this study suggests that other factors, such as cultural norms, economic status, healthcare accessibility, or regional differences, may have a stronger influence on unmet needs, even though education is frequently regarded as a crucial component in raising awareness and facilitating access to family planning services.

A study done by Rawat S. et al[58] discovered that the illiterate women had a much greater unmet need for family planning services as compared to uneducated women, literate women were less likely to have unmet needs for family planning services.

Table 23: Comparison of unmet need & socioeconomic status

In the present study, it was found that there is no statistically significant correlation between socio-economic class and unmet demand for family planning services (p value > 0.05). unmet need for family planning services was higher (67.5%) among participants from class III socio-economic status (Modified B.G Prasad classification).

In contrast to women from the middle and above middle classes (74.2%), women from the lower and upper lower socioeconomic groups had a higher unfulfilled demand for contraceptive services (84.2%), per a study by Yadav et al.[34]

A study by Letamo et al[60] suggests that the unmet need for FP was influenced by wealth. The unmet need for FP was lowest (7.1%) among married women in the richest quintile and greatest (16.6%) among those in the poorest quintile.

The apparent disparity between the present study and other studies may be due to variations in study methods, regional settings, or the intricacy of the variables affecting family planning choices.

Table 24: Comparison of unmet need & number of pregnancies

In the present study, it was found that a significant correlation (p value <0.001) between parity and unmet needs for family planning services. The unmet need was significantly higher among women who had become pregnant one or more than once as compared to those who never had pregnancy. Multiparous women were having a higher unmet need (31.1%) as compared to nulliparous women (6.3%).

This result is consistent with the study by Raj T P et al[59] which indicated that parous women had a statistically significant higher likelihood of having an unmet requirement than nulliparous women.

Table 25: Comparison of type of family planning method & number of live births

In the present study, it was found that, the association between total number of live births and type contraceptives used by the participants were statistically significant. If total no live births

were >/= 2, then, oral contraceptive pills were most commonly used method by the participants followed by intra-uterine devices. Among nulliparous women male condom was the most preferred method.

This pattern is in line with research from Tamil Nadu by Nair et al[55] that found that women with higher parity were more likely to use modern contraceptive techniques, such as IUDs and OCPs, in an effort to better manage their reproductive health. Among women with higher parity, OCPs and IUDs are preferred for a number of reasons. In order to avoid getting pregnant again, women who have had several pregnancies should look for longer-term, more dependable forms of birth control. While IUDs offer a long-term option with little maintenance, OCPs are frequently preferred for their simplicity and reversibility. .

Table 26: Comparison of unmet need & Spousal motivation

In the present study, it was found that a significant association (p value <0.001) between Spousal motivation and unmet need for family planning services. Women with husband having a positive attitude towards family planning were found to be less likely to have an unmet demand as compared to females whose husband had an unfavourable attitude.

This result is consistent with the research by Letamo et al[60] where the greatest unmet need for FP was among women whose partners disapproved of it.

Compared to women whose husbands had a negative attitude, those whose husbands had a positive attitude were found to have a lower likelihood of having an unmet demand.

Table 27: Comparison of unmet need & contacts with health care worker

The current study discovered a substantial (p value <0.001) correlation between unmet family planning service needs and contacts with health care workers. The likelihood of an unmet need was higher among participants who did not have contact with a health care worker than among those who did.

This result is consistent with a study by Genet E et al[61] in which compared to women who received counselling, women who did not get counselling from health care providers regarding the usage and adverse effects of contraceptives were 6.76 times more likely to have an unmet need for FP.

The results of the study demonstrate how important it is for healthcare professionals to meet unmet family planning (FP) requirements. Unmet FP needs can be considerably decreased by healthcare professionals, especially those who counsel and educate patients about contraceptive options. Better family planning results are achieved when people use this individualised advice to make well-informed decisions.

Table 28: Comparison of unmet need & Media exposure

In the present study, there was a noteworthy association between media exposure and unmet demand for family planning services was found (p value <0.001).

This finding is consistent with the study done by Letamo et al[60] where unmet FP needs were impacted by the media exposure. The biggest unmet demand for FP was found among women who had never seen television or listened to a radio about family planning, with respective rates of 15.7% and 14.1%.

Table 29: Comparison of unmet need & knowledge about free of cost services for family planning methods

In the current study, it was found that the relationship between knowledge about free of cost services to contraceptive methods and unmet demand was found to be statistically significant (p value <0.001).

This result is consistent with the research done by Hamsa L et al[62] discovered that women who knew about contraceptive techniques and the location where FP services could be obtained were less likely to have unmet needs.

Similar finding in the study done by Yadav et al.[34], where women who were aware that family planning services were available at the U-PHC had a considerably lower likelihood of having an unmet need than those who were unaware of the free of cost services for family planning method.

Conclusion

The study focuses on the unmet family planning (FP) demand among young married women (18–24 years) residing in urban slums of Belagavi city, Karnataka, India. It highlights the critical role of family planning in improving maternal and child health, reducing unintended pregnancies, and addressing socio-economic challenges. Despite global and national efforts to promote family planning, a significant proportion of women, particularly in low-resource settings like urban slums, continue to face barriers to accessing and utilizing family planning services.

This community-based cross-sectional study conducted among 380 young married women (18-24 years) residing in the urban slums of Belagavi city highlights a significant unmet need for family planning services, with 54.21% of participants not using any form of contraception despite being aware of family planning methods. According to the survey, opposition from spouses or in-laws, fear of adverse effects, and ignorance are the main causes of this unmet demand. Furthermore, multiparous women and younger women (less than 21 years old) showed higher levels of unmet requirements, highlighting the necessity of tailored treatments for these populations.

Majority of the participants claiming healthcare workers as their primary source of information on family planning services, the results highlight the crucial role that these professionals play in this regard. However, the unmet demand is made worse by the lack of premarital health education (99.74% did not receive any) and the restricted media exposure. It was discovered that contact with healthcare professionals and spousal motivation greatly decreased unmet needs, highlighting the significance of enlisting husbands and enhancing access to healthcare services.

The study also emphasises how sociocultural influences, reluctance or shame when talking about family planning, continue to prevent people from using contraceptives. Additionally, reduced unmet needs were linked to knowledge of free family planning services, indicating that raising awareness of these programs could enhance the adoption of contraceptives.

These young people's attitudes could be shaped early on by incorporating reproductive and sexual education into regular school health services. This would greatly encourage them to use contraceptives in the future and to follow healthy fertility practices. The establishment of a peer network centred in the community will offer a forum for comprehensive dialogue regarding family planning techniques. In addition to providing the young women the freedom to access FP services, these community-based peer groups will assist them in overcoming feelings of shame, shyness, or hesitancy.

We can say that a multifaceted strategy is needed to address the unmet family planning needs of young married females living in urban slums. Premarital sex education should be improved, media campaigns should be expanded, spousal communication should be improved, and free family planning options should be easily accessible. Reducing unmet requirements and enhancing reproductive health outcomes in this susceptible group need tackling sociocultural obstacles and strengthen the role of healthcare professionals.

Recommendations

The following suggestions are put out in light of the study's findings to meet the unmet need for family planning services among young married women (18–24 years old) living in urban slums.

Premarital Health Education: To teach young couples about reproductive health, family planning techniques, and the value of spacing and restricting births, introduce and support premarital health education programs. This can be incorporated into community-based initiatives or school curricula.

Community Awareness Campaigns: To spread knowledge about family planning options, their advantages, and accessibility, regularly organise awareness campaigns in city slums.

Improve access to Family Planning Services: In urban slums, Government bodies should make sure that family planning services are widely accessible and free. Increase the number of health facilities or mobile clinics that offer counselling and contraceptive techniques.

Involve Spouses and Families: Promote husbands' and in-laws' participation in family planning talks and decision-making. To address misunderstandings and resistance, hold seminars or therapy sessions aimed at guys.

Family Counselling: Conduct family counselling sessions to address social and cultural hurdles, including family members' resistance, and foster a supportive environment for the use of contraceptives.

Addressing misconceptions and counselling for fear of side effects: Assure women that contraceptive techniques are safe and reversible while educating them about the possible negative effects of using them. By providing one-on-one counselling, dispel misunderstandings and misconceptions.

Media campaigns: Use newspapers, radio, television, and social media to spread the word about family planning services and methods. Create interesting and educational content to appeal to a larger audience.

Approaching target population through Mobile Health: Send instructional messages, reminders, and details about family planning programs in slum areas using mobile technology.

Youth-Friendly Services: Developing youth-friendly family planning services that cater to the specific needs of younger women (<21 years). We should ensure these services are non-judgmental, confidential, and easily accessible.

Post partum family planning: In order to address the increased unmet demand of multiparous women and encourage the use of long-acting reversible contraceptives, postpartum family planning counselling should be a priority.

Program Monitoring and Evaluation: Assess family planning programs on a regular basis to find gaps and gauge how well they are working to reduce unmet requirements.

Young married ladies living in urban slums have an unfulfilled demand for contraceptives, which calls for a comprehensive, multifaceted strategy that includes policy support, education, accessibility, and community engagement. Reducing the unmet demand, enhancing reproductive health outcomes and enabling young women to make knowledgeable decisions regarding their family planning requirements can all be achieved by putting these suggestions into practice.

Strength

To ensure a wide and varied representation of the target demographic, the study included a representative sample of 380 young married women (18–24 years old) from 12 urban slums in Belagavi city.

Using a community-based cross-sectional design, which is appropriate for determining the prevalence of unmet needs and identifying related factors in a particular group, a robust methodology was used. The validity and reliability of the data gathered were guaranteed by the use of a pre-tested, validated questionnaire.

The study focused on young married females residing in city slums, a vulnerable and frequently neglected demographic, emphasising their particular requirements and difficulties in obtaining family planning services.

A comprehensive understanding of the factors impacting unmet requirements was provided by the study's broad data collection on sociodemographic traits, family planning knowledge, attitudes, and practices.

The results can influence the creation of focused interventions to address unmet requirements and are directly applicable to enhancing family planning programs, especially in urban slums.

All things considered, the study's merits are its exacting methodology, attention to a disadvantaged population, and practical conclusions that might guide programmatic and legislative initiatives to enhance family planning services.

Limitations

Though the study has robust methodology, it is not without limitations, which need to be addressed.

Firstly, the collected data is self-reported information, which has a potential for self-reporting bias and also white coat bias, leading participants to provide answers they perceive as correct and not what they actually practice. This limitation could impact the accuracy of the collected information.

Limited Attention to Male Perspectives: The study excluded the opinions of the husbands and other male partners in favour of concentrating mostly on young married women. Family planning decisions are heavily influenced by male views and involvement, therefore leaving them out could reduce how thorough the results are.

Finally, the cross-sectional type of the study itself is a limitation, where data is collected at one point of time. Further studies of a follow-up nature are required to more comprehensively analyze the objectives.

These limitations have to be considered when interpreting the findings. Addressing these limitations in future research could further advance the holistic and comprehensive strategies to combat the unmet need for family planning services among young married women.

Summary

The unmet demand for family planning services among 380 young married females (18–24 years) residing in the slums of Belagavi city, Karnataka, was evaluated by this community-based cross-sectional study, which was carried out between April 2023 and March 2024. The study sought to determine influential factors and assess the prevalence of unmet demand. A validated questionnaire was used to gather data, and SPSS software was used for analysis.

The mean age at marriage was 18.52 ± 1.58 years, with 39.74% of participants having two children. Prior to marriage, 99.74% of participants did not get any family planning health education.

Of the participants, 54.21% had an unmet family planning need, while 45.79% used at least one form of contraception. Permanent sterilization (28.16%) and intrauterine devices (29.31%) were the most often utilised techniques. The main excuses for not adopting family planning techniques were ignorance (45.81%), concern about adverse consequences (18.99%), and opposition from spouses or in-laws (11.73%).

Healthcare workers were the main source of knowledge for 83.42% of participants, who knew of at least one family planning technique (60.25%).

Age and unmet family planning service needs were shown to be significantly correlated ($p < 0.001$). Compared to older women (>21 years), younger women (<21 years) had a higher percentage of unmet requirements (30.6%). Compared to nulliparous women (6.3%), multiparous women (those with one or more pregnancies) reported a larger unmet need (31.1%).

While nulliparous women favoured male condoms, women who had two or more live births tended to utilise oral contraceptive tablets and intrauterine devices. Unmet need and spousal motivation were shown to be significantly inversely correlated ($p < 0.001$). Women were less likely to experience unfulfilled needs if their spouses were supportive of family planning.

The likelihood of an unmet demand was lower for women who interacted with healthcare professionals than for those who did not. Those who were exposed to media (whether via radio, television, newspapers, or social media) had a lower percentage of unmet needs (5.7%) than those who were not exposed (18.2%). The reduction of unmet requirements was significantly ($p < 0.001$) correlated with knowledge of free family planning services.
The likelihood of an unmet need was lower for women who knew about free services than for those who did not.

The study showed that young married women living in urban slums had a sizable unmet need for family planning services, which is fuelled by a lack of awareness, sociocultural barriers, and restricted access to resources and education. A multifaceted strategy is needed to address these problems, including improving campaigns for premarital health education and

awareness. Increasing spousal participation in family planning choices and media exposure. enhancing the role of medical professionals and guaranteeing free family planning services.

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Annexures

ANNEXURE – I

KAHERs JNMC

BELAGAVI

INFORMED CONSENT FORM

Title: **Unmet need for Family Planning services among young married women residing in urban slums of Belagavi city – A cross-sectional study.**

Introduction: India is the second most populous country in the world having 1.4 billion population. Increase in population degrades quality of life. Hence Family planning is one of the most important tool for nation's wellbeing. Unmet need of contraception means women who do not want to get pregnant but not using contraception. The usage of contraception can prevent unwanted pregnancy, abortion and many other ill effects on maternal health and family. In young married women there is high fertility rate so chances of unwanted pregnancy are more. Hence to know the prevalence of unmet need for contraception /family planning and factors causing unmet need for family planning we are conducting this study.

Explanation of procedure:

Questions regarding knowledge, attitude, practice of family planning/contraception use and it's barrier will be asked in your native language which will be documented in this study.

Withdrawal from participation in the study: Participation in this study in voluntary. You are free to decide whether to participate in this study or to continue participation once enrolled. In case you decide to withdraw your participation, you are free to do so. However, please convey the decision to the principal investigator.

of aggregated data: Results obtained after processing of the aggregated data will be published for scientific purpose and or presented to scientific groups. However, your identity will never be revealed.

If you have any question or complaints with regard to your right as study participant you may contact Dr Harsha Hegde, Chairperson, Ethical committee of JNMC,

Possible benefits from participating in the study: You will not get any benefits by participating in this study. The data gathered will help population at large.

Possible risks from participating in the study: There are no risks involved in participating in this study.

Privacy and confidentiality: The information collected from you will be coded, to prevent any person to identify you. Your identity will never be revealed. The data collected from you will be kept confidential and only processed or aggregated data will be used for publication.

Cost of investigations done during the course of study will be paid by the **principal investigator.**

Legal rights: By signing this consent form, we are not waving any of your legal rights.

CONSENT STATEMENT

I am making a voluntary decision to participate in the study "**TITLE: UNMET NEED FOR FAMILY PLANNING SERVICES AMONG YOUNG MARRIED WOMEN RESIDING IN URBAN SLUMS OF BELAGAVI CITY -A CROSS-SECTIONAL STUDY**". My signature below indicates that I have decided to participate and I have read the information provided above or the information provided above has been read to me in the language that I understand best. I was given the opportunity to ask questions and that they have been answered to my satisfaction.

Name of the participant:

Signature or left thumb impression of the participant:

Name of the witness:

Signature or left thumb impression of the witness:

Name of the investigator:

Signature of the investigator:

ANNEXURE – II

Questionnaire

Title: Unmet need for family planning services among young married women residing in urban slums of Belagavi city- A Cross-Sectional study.

Questionnaire on utilization of family planning services among young married women residing in urban slums of Belagavi city.

(NOTE: The personal data provided by you will be kept confidential. Only aggregated results will be presented /published without revealing your personal identity.)

Serial no:

Date:

Name of the slum:

Socio -demographic details of the participant:

1. Name:
2. Age:

    1. 18 years. 2. 19 years 3. 20 years 4. 21 years 5. 22 years

    6. 23 years 7. 24 years

3.Religion:

1. Hindu 2. Muslim 3. Christian 4. Others (specify)

4 Education (of the participant)

1. No formal schooling 2. Less than primary school 3. Primary school completed 4. Secondary school completed 5. High school completed 6. Degree /postgraduation completed

5. Occupation:(of the participant)

1. self-employed 2. Government Employee

3.Private Employee 4. Home- maker

6. Husband's education: 1. No formal schooling 2. Less than primary school 3. Primary school completed 4. Secondary school completed 5. High school completed 6. Degree /postgraduation completed

7. Husband's occupation:

1. self-employed 2. Government Employee 3. Private Employee

8. Type of family –

1. Nuclear family 2. Joint family 3. Three generation family 4. Broken family

9. Total no. of family member:

10.Family income (per month) (in rupee)-

11.Per capita income (in rupee)-

12. socio -economic class (Modified B.G Prasad classification): i/ii/iii/iv/v

MARITAL AND OBSTETRICS HISTORY OF THE PARTICIPANT:

13. Age at marriage (in years):

1.Less than 18 2. 18 3. 19 4. 20 5 .21 6. 22 7. 23 8. 24

14. Age of the participant's at the time of birth of first child:(in years)

1.Less than 18 2.18-19 3. 20 - 21 5.22-23 6. 24

15. Total no. of pregnancies:

16.Total no. live births:

17.Total no. of abortions:

18.Total no. of children at present:

KNOWLEDGE AND ATTITUDE OF THE PARTICIPANT TOWARDS FAMILY PLANNING:

19. According to you what is the ideal age for a girl to get married?

1. At the onset of menarche 2. 14-16 years 3. 16-18 years

4. More than 18 years 5. Other (specify)

20.According to you when is the right time to have first child?

1. Just after marriage 2. 1-2 years after marriage

3. >2 years after marriage 4. Other(specify)

21. According to you what is the ideal no. of children that a woman should have?

1. One 2. Two 3. More than 2 4. More than 3 5. Other (specify)

22. what do you think about ideal age spacing between two children?

1. 1 year 2. 1-2 years 3. 2-3 years

4. 3-5 years 5. More than 5 years 6. Other (specify)

23. After marriage how many children did you and your spouse want?

1.One 2. Two 3. More than two 4. Other(specify)

24. After marriage when did you and your spouse want first child?

1. Never thought of it 2. Just after marriage 3. 1-2 years after marriage

4. > 2 years after marriage 5. Other (specify)

25.Do you want any more children? 1. yes 2. No

26. If yes, then when?

1. Within 1 year 2. Within 2 years 3. Within 3 years

4. Within 4 years 5. Within 5 years 6. > 5 years

27. Did you discuss about no. of children and spacing with your spouse? 1. Yes 2. No

28. If yes, then what was his (spouse) attitude?

1. Agree 2. Disagree 3. Unresponsive 4. Neglectful

29.Did you discuss about no. of children and spacing method with anyone else other than your spouse? 1. Yes 2. No

30.If yes, with whom did you discuss?

1. mother/mother- in- law 2. sister/sister- in- law

3. friend 4. Neighbour 5. other(mention)

31. Did anyone encourage you to use contraceptives? 1. Yes 2. No

32.If yes, who?

1. Spouse 2. Health care worker 3. Sister/sister-in-law

4. Friend 5. Neighbour

33. Do you know any Government health program on family planning? 1. Yes 2. No

34.Did you get any health education on family planning before you got married?

1.Yes 2. No

35. which family planning method do you know about?

1. Oral contraceptive pills 2. Male condoms 3. Injectable contraceptives

4.Intra- uterine devices 5. Female condoms 6. Diaphragm 7. Safe period method

8. Abstinence method 9. Permanent sterilization method (Vasectomy / Tubectomy)

10. None

36.How do you know about these methods?

1. Healthcare worker 2. Social media/ television /newspaper/ radio

4.Neighbour 5. Friends 6. Other (specify)

37.Do you know any place where family planning services are given free of cost?

1.Yes 2. No

38. If yes, where family planning services are given free of cost?

1. Government hospitals 2. Medical college hospitals

3. Charitable hospitals 4. Primary health centre (PHC) 5. NGO

PARTICIPANT'S CONTRACEPTION USE:

39. At present are you planning to get pregnant?

1. yes 2. No (if yes, skip q.no.40)

40. Are you currently using any contraceptive method?

1. Yes 2. No

FOR CONTRACEPTIVE CURRENT USERS:

41. which method currently you are using?

1. Oral contraceptive pills 2. Male condoms

3. Injectable contraceptives 4. Intra-uterine devices 5. Female condoms

6.Diaphragm 7. Safe period method 8. Abstinence method

9. Permanent sterilization method (Vasectomy /Tubectomy)

42. For how long are you using this method? (months/years)

1. three months-six months 2. One year

3.Two years 4. Three years 5. > three years.

43.Do you use it regularly? 1. Yes 2. No

44. If no, then why do you not use it regularly?

1. You forget to take/use 2. after intake/use you get health issues

3. your spouse asks you not to take 4. you don't like to take it regularly

5. Fear of side effects 6. Costly 7. Lack of accessibility 8. Lack of availability

9.Currently breastfeeding 10. infrequent sexual activity

45. Do you use any other method when you do not practice this method?

1. Yes 2. No

46.If yes, which method?

1. Oral contraceptive pills 2. Male condoms 3. Emergency contraceptives

4.Injectable contraceptives 5. Intra- uterine devices 6. Female condoms

7.Diaphragm 8. Safe period method 9. Abstinence method

FOR CONTRACEPTIVE EVER USERS:

47. When was the last time you used a contraceptive method?

1. Within one month 2. Within two to three months

3.Three to six months 4. More than six months

48. what was the contraceptive method?

1. Oral contraceptive pill 2. Male condoms

3.Injectable contraceptives 4. Emergency contraceptives 5. Intra uterine devices

6. Female condoms 7. Diaphragm 8. Safe period method 9. Abstinence method

49. Why did you stop using the method?

1. after intake/use you got health issues 2. your spouse asked you not to take

3. you didn't like to take/use it 4. Fear of side effects 5. Costly

6.Lack of accessibility 7. Lack of availability 8. Currently breastfeeding

9.Other (specify)

FOR BOTH CURRENT AND EVER CONTRACEPTIVE USERS:

50. Between you and your spouse who decided to use this method which you are practising now?

1. Self 2. Spouse 3. Both

51.Did anyone oppose your decision of using contraceptives? 1. Yes 2. No

52.If yes, who?

1. Husband 2. Mother- in -law 3. Father- in -law 4. Other (mention)

53.Did you suffer from any of the side effects of this method? 1. Yes 2. No

54. Did you seek any treatment for the side effects of this method? 1.Yes 2. No

55.From where did you obtain this family planning/contraceptive method?

1. Government hospitals 2.Medical college hospitals

3. Charitable hospitals 4. Primary health centres(PHCs)

5.Medical shop (over the counter) 6. NGOs

For contraceptive non- users:

56.Why have you not used any contraceptive method ever?

1. Lack of knowledge 2. Opposition to use (by your spouse or in-laws)

3.Method related reasons 4. Fertility related reasons (any specific gynecological/obstetrical disorder) 5. Fear of side effects 6. Costly 7. Lack of accessibility 8. Lack of availability 9. you, yourself don't like to use contraceptive method 10. don't know

57.Do you think you will use contraceptive method to delay or avoid getting pregnant in near future? 1. Yes 2. No 3. Do not know

58. if no, then why not?

1. Opposition to use (by your spouse or in-laws) 2.Method related reasons

3.Fertility related reasons (any specific gynecological/ obstetrical disorder)

4. Fear of side effects 5. Costly 6. Lack of accessibility 7. Lack of availability

8. you, yourself don't like to use contraceptives

9. Planning to get pregnant in near future 10. don't know

EMERGENCY CONTRACEPTIVE METHOD RELATED INFORMATION:

59.Do you know about emergency contraceptives? 1. Yes 2. No

60.In last 6 months have you ever used emergency contraceptives? 1. Yes 2. No

61.If yes, how many times did you use emergency contraceptive?

1. once 2. Twice 3. Thrice 4. More than three times 5. Others (specify)

PARTICIPANT'S PERSPECTIVE ON FAMILY PLANNING SERVICES:

62.According to you is there any necessity to educate girls/women regarding the use of contraceptive methods/family planning services?

1. Yes 2. No

63.According to you what is the right time for educating girls/women regarding the usage of contraceptives/family planning methods?

1. 14-16 years 2.16-18 years 3. 18-20 years 4. >20years

64.Acoording to you who is the most ideal person for educating girls/women regarding contraceptive methods?

1. Healthcare worker 2. Mother 3. School teacher 4. others (specify)

ANNEXURE-III

KEY TO MASTER CHART

Pre-validated questionnaire was used in the present study. The coding for variables were made as follows:

1) Age:

2. 18 years. 2. 19 years 3. 20 years 4. 21 years 5. 22 years

6. 23 years 7. 24 years

2) Religion:

2. Hindu 2. Muslim 3. Christian 4. Others (specify)

3) Education (of the participant)

1. No formal schooling 2. Less than primary school 3. Primary school completed

4. Secondary school completed 5. High school completed 6. Degree /postgraduation completed

4) Occupation:(of the participant)

1. self-employed 2. Government Employee

3.Private Employee 4. Home- maker

5) Husband's education:

1. No formal schooling 2. Less than primary school 3. Primary school completed

4. Secondary school completed 5. High school completed 6. Degree /postgraduation completed

6) . Husband's occupation:

1. self-employed 2. Government Employee 3. Private Employee

7) Type of family –

1. Nuclear family 2. Joint family 3. Three generation family 4. Broken family

8) Socioeconomic class

1- 8397

2- 4156-8396

3- 2460-4155

4- 1272-2456

5- 1272

9. Age at marriage (in years):

1.Less than 18 2. 18 3. 19 4. 20 5 .21 6. 22 7. 23 8. 24

10. Age of the participant's at the time of birth of first child:(in years)

1.Less than 18 2.18-19 3. 20 - 21 5.22-23 6. 24

11. Total no. of pregnancies:

12.Total no. live births:

13.Total no. of abortions:

14.Total no. of children at present:

15. According to you what is the ideal age for a girl to get married?

1. At the onset of menarche 2. 14-16 years 3. 16-18 years

4. More than 18 years 5. Other (specify)

16.According to you when is the right time to have first child?

1. Just after marriage 2. 1-2 years after marriage

3. >2 years after marriage 4. Other(specify)

17. According to you what is the ideal no. of children that a woman should have?

1. One 2. Two 3. More than 2 4. More than 3 5. Other (specify)

18. what do you think about ideal age spacing between two children?

1. 1 year 2. 1-2 years 3. 2-3 years

5. 3-5 years 5. More than 5 years 6. Other (specify)

19. After marriage how many children did you and your spouse want?

1.One 2. Two 3. More than two 4. Other(specify)

20. After marriage when did you and your spouse want first child?

1. Never thought of it 2. Just after marriage 3. 1-2 years after marriage

4. > 2 years after marriage 5. Other (specify)

21.Do you want any more children? 1. yes 2. No

(if response was - 2. No then question 22- coding was 99)

22. If yes, then when?

2. Within 1 year 2. Within 2 years 3. Within 3 years

4. Within 4 years 5. Within 5 years 6. > 5 years

23. Did you discuss about no. of children and spacing with your spouse? 1. Yes 2. No (if response was - 2. No, then question 24- coding was 99)

24. If yes, then what was his (spouse) attitude?

2. Agree 2. Disagree 3. Unresponsive 4. Neglectful

25.Did you discuss about no. of children and spacing method with anyone else other than your spouse? 1. Yes 2. No

(if response was - 2. No, then question 26- coding was 99)

26.If yes, with whom did you discuss?

1. mother/mother- in- law 2. sister/sister- in- law

3. friend 4. Neighbour 5. other(mention)

27. Did anyone encourage you to use contraceptives? 1. Yes 2. No

(if response was- 2. No, then Q 28- coding was 99)

28.If yes, who?

2. Spouse 2. Health care worker 3. Sister/sister-in-law

5. Friend 5. Neighbour

29. Do you know any Government health program on family planning? 1. Yes 2. No

30.Did you get any health education on family planning before you got married?

1.Yes 2. No

31. which family planning method do you know about?

1. Oral contraceptive pills 2. Male condoms 3. Injectable contraceptives

4.Intra- uterine devices 5. Female condoms 6. Diaphragm 7. Safe period method

8. Abstinence method 9. Permanent sterilization method (Vasectomy / Tubectomy)

10. None

32.How do you know about these methods?

1.Healthcare worker 2. Social media/ television /newspaper/ radio

3.Neighbour 4. Friends 5. Other (specify)

33.Do you know any place where family planning services are given free of cost?

1.Yes 2. No (if response was - 2. No, then Q 34- coding was 99)

34. If yes, where family planning services are given free of cost?

1. Government hospitals 2. Medical college hospitals

3. Charitable hospitals 4. Primary health centre (PHC) 5. NGO

35. At present are you planning to get pregnant?

1. yes 2. No

36. Are you currently using any contraceptive method?

1. Yes 2. No

(if response was - 2. No, then question no 37, 38,39,40,41,42,46,47,48,49,50,51 - coding was 99)

37. which method currently you are using?

1. Oral contraceptive pills 2. Male condoms

3. Injectable contraceptives 4. Intra-uterine devices 5. Female condoms

6.Diaphragm 7. Safe period method 8. Abstinence method

9. Permanent sterilization method (Vasectomy /Tubectomy)

38. For how long are you using this method? (months/years)

1. three months-six months 2. One year

3.Two years 4. Three years 5. > three years.

39.Do you use it regularly? 1. Yes 2. No

(if response was 1. Yes then Q 40- coding was 99)

40. If no, then why do you not use it regularly?

1. You forget to take/use 2. after intake/use you get health issues

3. your spouse asks you not to take 4. you don't like to take it regularly

5. Fear of side effects 6. Costly 7. Lack of accessibility 8. Lack of availability

9.Currently breastfeeding 10. infrequent sexual activity

41. Do you use any other method when you do not practice this method?

1. Yes 2. No (if response was - 2. No, then Q 42- coding was 99)

42.If yes, which method?

1. Oral contraceptive pills 2. Male condoms 3. Emergency contraceptives

4.Injectable contraceptives 5. Intra- uterine devices 6. Female condoms

7.Diaphragm 8. Safe period method 9. Abstinence method

(if there was no response to question 43 , then question no. 43, 44, 45 coding were 99)

43. When was the last time you used a contraceptive method?

1. Within one month 2. Within two to three months

3.Three to six months 4. More than six months

44. what was the contraceptive method?

1. Oral contraceptive pill 2. Male condoms

3.Injectable contraceptives 4. Emergency contraceptives 5. Intra uterine devices

6. Female condoms 7. Diaphragm 8. Safe period method 9. Abstinence method

45. Why did you stop using the method?

1. after intake/use you got health issues 2. your spouse asked you not to take

3. you didn't like to take/use it 4. Fear of side effects 5. Costly

6.Lack of accessibility 7. Lack of availability 8. Currently breastfeeding

9.Other (specify)

46. Between you and your spouse who decided to use this method which you are practising now?

1. Self 2. Spouse 3. Both

47.Did anyone oppose your decision of using contraceptives? 1. Yes 2. No

(if response was - 2. No, then Q 48- coding was 99)

48.If yes, who?

1 Husband 2. Mother- in -law 3. Father- in -law 4. Other (mention)

49.Did you suffer from any of the side effects of this method? 1. Yes 2. No

50. Did you seek any treatment for the side effects of this method? 1.Yes 2. No

51.From where did you obtain this family planning/contraceptive method?

1. Government hospitals 2.Medical college hospitals

3. Charitable hospitals 4. Primary health centres(PHCs)

5.Medical shop (over the counter) 6. NGOs

52.Why have you not used any contraceptive method ever?

1. Lack of knowledge 2. Opposition to use (by your spouse or in-laws)

3.Method related reasons 4. Fertility related reasons (any specific gynecological/obstetrical disorder 5. Fear of side effects 6. Costly 7. Lack of accessibility 8. Lack of availability 9. you, yourself don't like to use contraceptive method 10. don't know

53.Do you think you will use contraceptive method to delay or avoid getting pregnant in near future? 1. Yes 2. No 3. Do not know

(if response was– 1. Yes /3. Don't know then Q 54- coding was 99)

54. if no, then why not?

1. Opposition to use (by your spouse or in-laws) 2.Method related reasons

3.Fertility related reasons (any specific gynecological/ obstetrical disorder)

4. Fear of side effects 5. Costly 6. Lack of accessibility 7. Lack of availability

8. you, yourself don't like to use contraceptives

9. Planning to get pregnant in near future 10. don't know

55.Do you know about emergency contraceptives? 1. Yes 2. No

56.In last 6 months have you ever used emergency contraceptives? 1. Yes 2. No

(if response was - 2. No, then Q 57- coding was 99)

57.If yes, how many times did you use emergency contraceptive?

1. once 2. Twice 3. Thrice 4. More than three times 5. Others (specify)

58.According to you is there any necessity to educate girls/women regarding the use of contraceptive methods/family planning services?

2. Yes 2. No

59.According to you what is the right time for educating girls/women regarding the usage of contraceptives/family planning methods?

2. 14-16 years 2.16-18 years 3. 18-20 years 4. >20years

60.Acoording to you who is the most ideal person for educating girls/women regarding contraceptive methods?

2. Healthcare worker 2. Mother 3. School teacher 4. others (specify)

ANNEXURE – IV

MASTER CHART

Serial no	2) Age	3	4	5	6	7	8	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35)method	36	37	38	39	40	41	42. how long	43	44	45	46	47	48	49	50	51	52	53)S/E	54	55	56	57	58	59	60	61	62	63	64
1	3	2	4	4	4	1	3	3	2	2	1	1	0	1	4	2	2	3	2	1	1	3	2	99	2	99	2	99	2	2	10	99	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	1	99	2	2	99	1	3	2
2	7	2	5	1	4	1	1	3	2	3	4	2	2	2	4	3	2	4	2	4	2	99	1	1	2	99	2	99	2	2	10	99	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	2	8	2	2	99	1	2	1
3	7	2	4	4	4	3	1	3	1	1	4	3	1	3	4	3	3	3	3	1	2	99	2	99	2	99	2	99	2	2	4	4	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	5	2	4	2	2	99	1	2	1
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6	7	2	4	4	4	1	1	3	2	2	4	2	2	2	4	3	2	4	2	1	2	99	2	99	2	99	1	2	2	2	1	1	1	4	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	5	3	99	2	2	99	1	3	2
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11	6	2	4	4	4	1	1	3	2	2	2	2	0	2	4	3	2	3	2	2	2	99	2	99	2	99	2	99	2	2	1	4	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	1	99	2	2	99	1	3	2
12	7	1	4	4	3	1	2	4	1	2	3	3	0	3	4	2	4	2	4	3	1	2	1	1	2	99	2	99	2	2	9	4	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	1	99	2	2	99	1	4	1
13	5	2	6	4	5	1	2	3	4	3	1	1	0	1	5	1	2	3	3	2	1	3	1	1	2	99	2	99	2	2	10	99	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	3	99	2	2	99	1	3	2
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26	2	2	4	4	5	3	2	4	2	2	1	1	0	1	4	2	2	3	2	1	1	3	2	99	2	99	2	99	2	2	10	99	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	2	2	1	2	2	99	1	4	2
27	7	2	4	4	4	3	2	3	2	2	2	2	0	2	4	3	2	5	2	2	2	99	1	1	1	2	2	99	2	2	1	4	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	1	2	8	2	2	99	1	2	1
28	3	2	5	4	5	1	2	3	3	99	0	0	0	0	4	2	2	4	2	3	1	3	1	1	2	99	2	99	2	2	2	5	2	99	2	2	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	9	3	99	2	2	99	1	4	3
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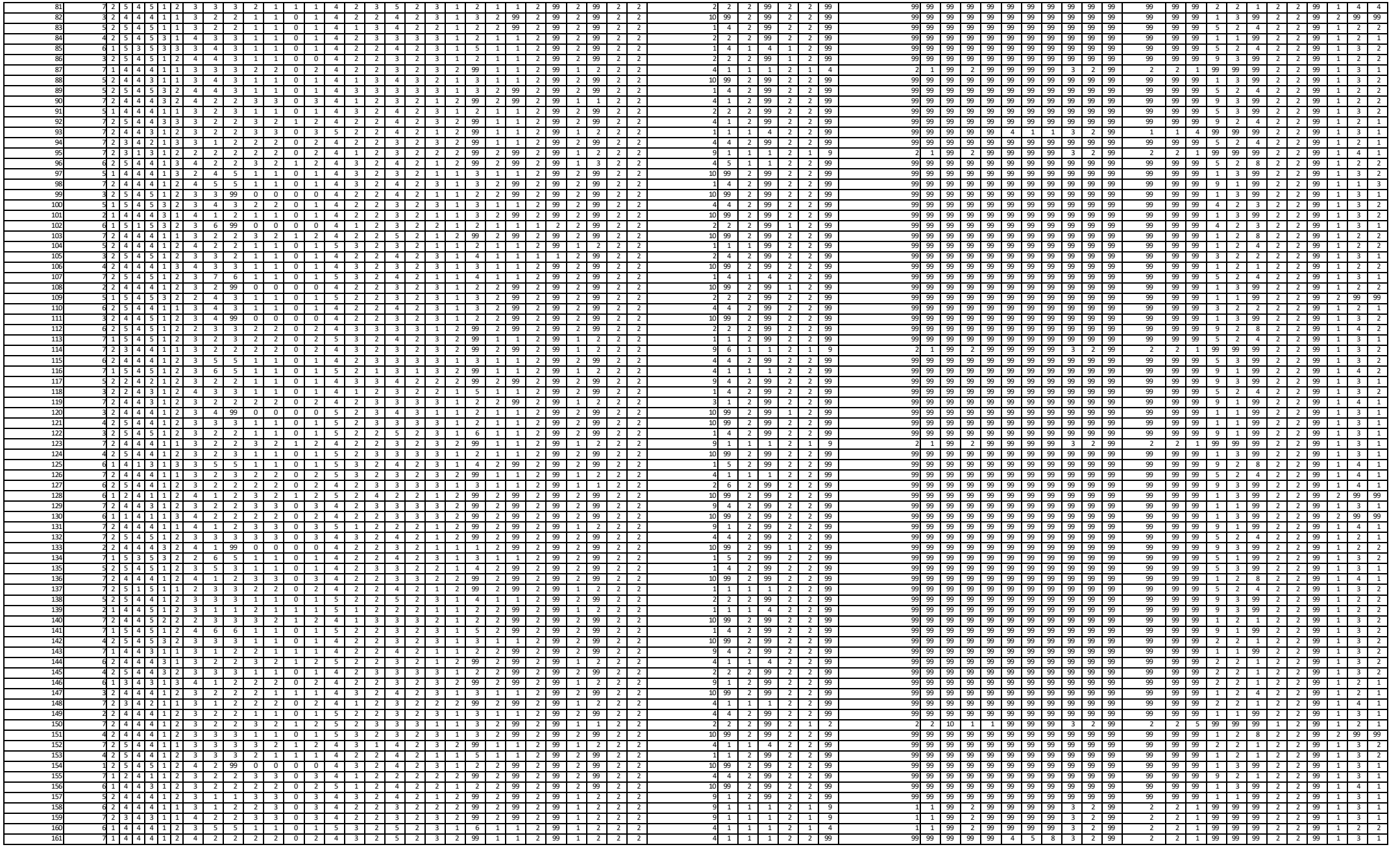

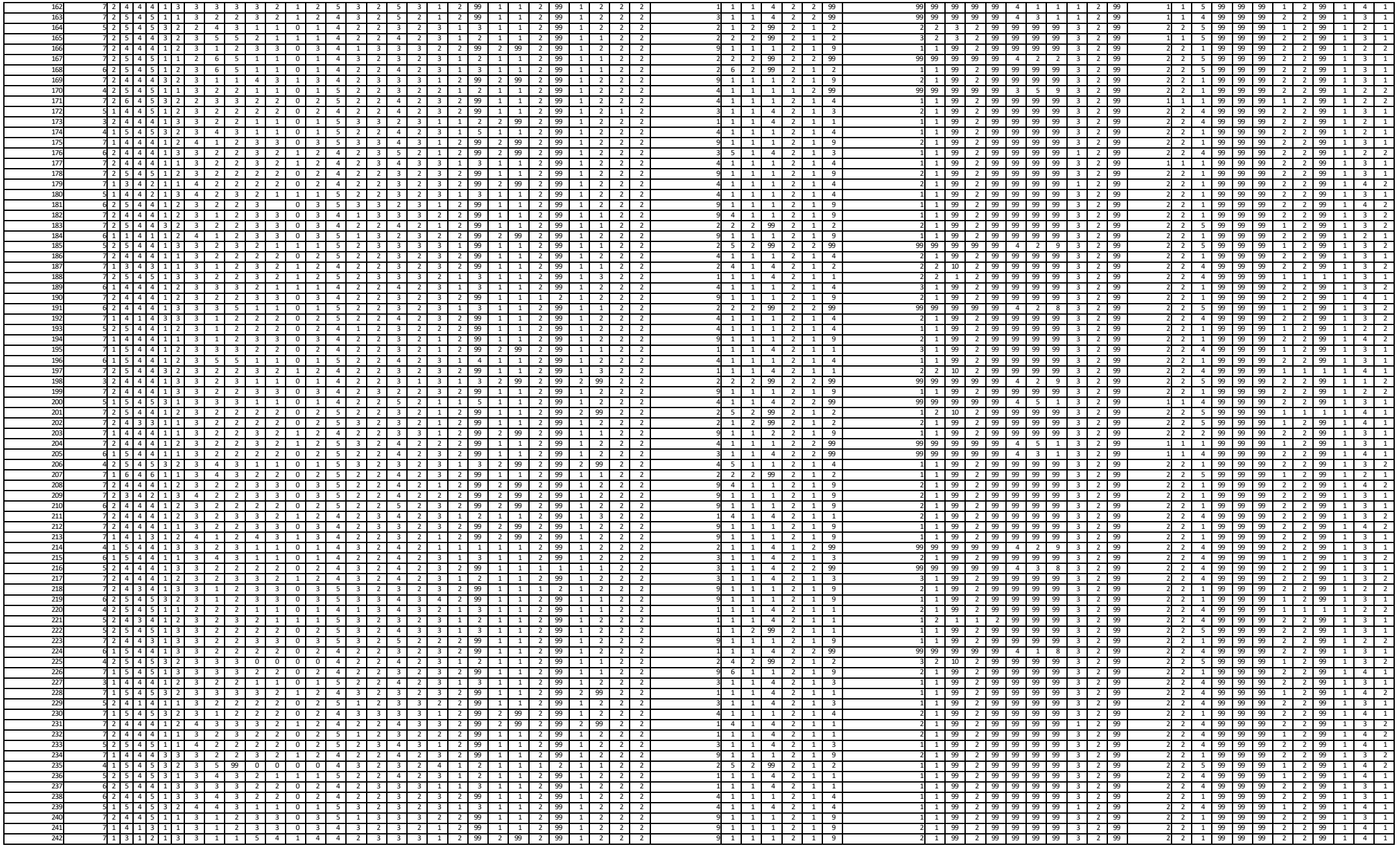

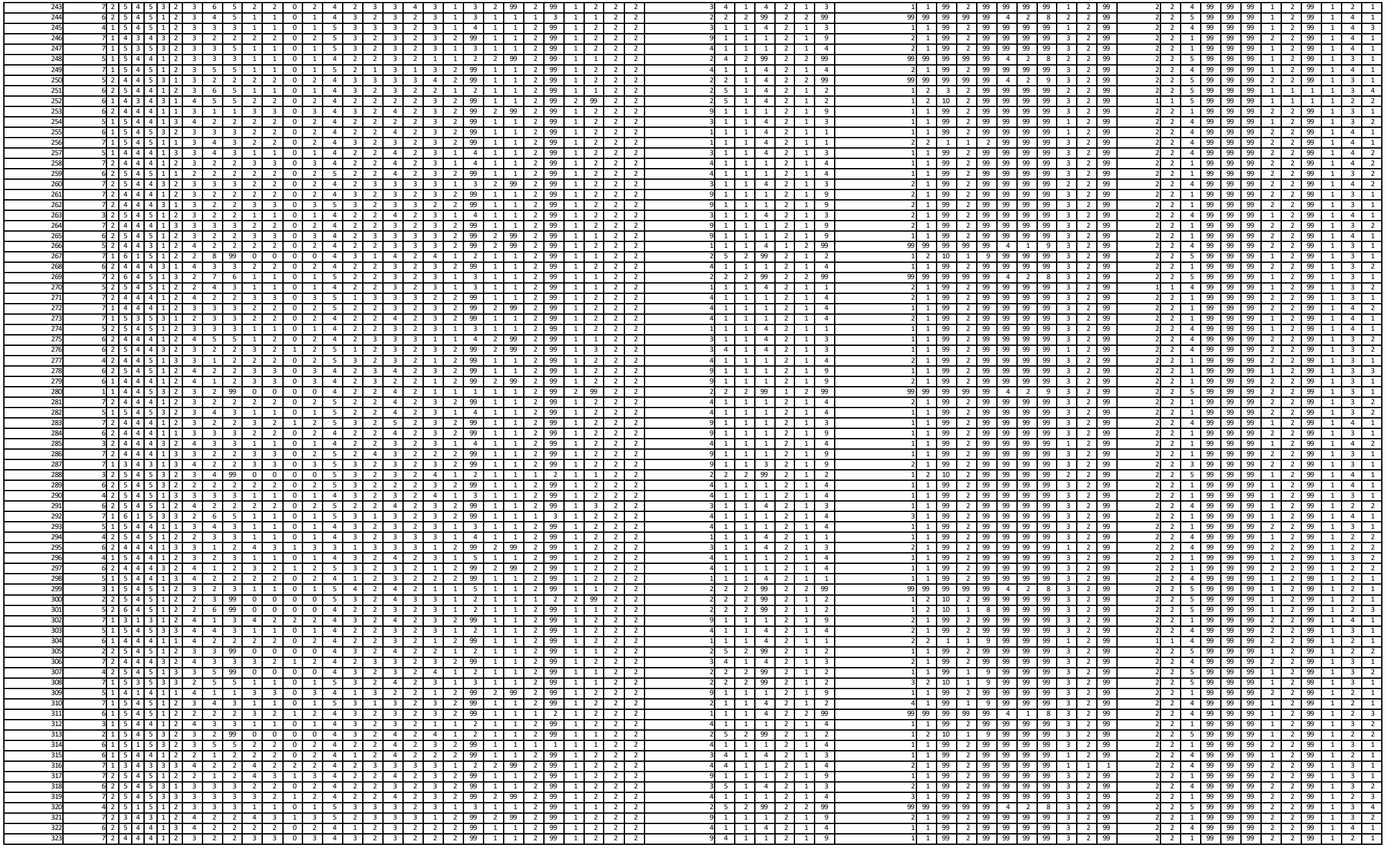

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