Internship Training

at

Piramal Swasthya Management and

Research Institute

Study Title:

Sustained contraceptive use among married women of reproductive age: Patterns and underlying factors.

by

Dr. Jyotsna Rai

Enroll No. PG/22/043

Under the guidance of

Dr. Rupsa Banerjee

_____

PGDM (Hospital & Health Management)

2022-24

International Institute of Health Management Research

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This certificate is awarded to

Name: Dr Jyotsna Rai

in recognition of having successfully completed her dissertation in the department of "RMLE" as "Research intern"

and has successfully completed her project on

Sustained Contraceptive use among married women of reproductive age: Patterns and Underlying Factors

Date: 26th Feb 2024 to 31st May 2024.

Organization: Piramal Swasthya Management and Research Institute

She comes across as a committed, sincere and diligent person who has a strong drive and zeal for learning.

Dr Tanmay Mahapatra
Director, Data and Learning
Piramal Swasthya Management and Research Institute

(Training and Development)

Dr Anup G Nair
Sr. Director, Hr & Admin
Piramal Swasthya Management and Research Institute

(Zonal Head-Human Resources)

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Dr. Jyotsna Rai** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **Piramal Swasthya Management and Research Institute**, **Bihar** from 26 Feb 2024 to 31 May 2024.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific, and analytical. The Internship is in fulfillment of the course requirements. I wish her all success in all her future endeavors.

Dr. Sumesh Kumar

Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Dr.Rupsa Banerjee

Mentor
IIHMR, New Delhi

Certificate of Approval

The following dissertation titled "Sustained Contraceptive use among married women of Reproductive age: Patterns & Underlying Factors at "Piramal Foundation, Bihar" is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed, or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
NAVEEN VASHIST	
VINAY	
Dr. Piyush Kanti Khan.	

Certificate from Dissertation Advisory Committee

This is to certify that Dr Jyotsna Rai, a graduate student of the PGDM (Hospital & Health Management) has worked under our guidance and supervision. she is submitting this dissertation titled "**Sustained Contraceptive use among married women of reproductive age: Patterns and Underlying Factors**" at **PIRAMAL SWASTHYA MANAGEMENT AND RESEARCH INSTITUTE"** in partial fulfilment of the requirements for the award of the PGDM (Hospital & Health Management).

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

DR. RUPSA BANERJEE

ASSOCIATE PROFESSOR,

MENTOR
IIHMR, DELHI

DR. TANMAY MAHAPATRA

DIRECTOR DATA AND LEARNING,

PIRAMAL SWASTHYA MANAGEMENT AND RESEARCH

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "**Sustained contraceptive use among married women of reproductive age: Patterns and underlying factors"** submitted by Dr. Jyotsna Rai, Enrollment No PG/22/043 under the supervision of Dr. Rupsa Banerjee for award of PGDM (Hospital & Health Management) of the Institute carried out during the period from **26 Feb 2024** to **31 May 2024** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.

Signature
Dr. Jyotsna Rai

FEEDBACK FORM

Name of the Student: Dr Jyotsna Rai

Name of the Organization in Which Dissertation Has Been Completed: Piramal Swasthya Management and Research Institute

Area of Dissertation: Family Planning (Sustained Contraceptive use among married women of reproductive age: Patterns and Underlying Factors)

Attendance: The student's attendance was 100%, she was sincere, diligent and engaged in the tasks assigned and sessions offered.

Objectives achieved: Through this dissertation project engagement, Jyotsna could achieve the desired objectives of learning methodical literature review, preparation of synthesis collating findings from background literature, programmatic and contextual information, could learn analytics, acquire skills to interpret findings into results and discussion sections of knowledge products.

Deliverables: Participating in analysis, interpretation and developing a synthesis on "Sustained Contraceptive use among married women of reproductive age: Patterns and Underlying Factors"

Strengths: Diligence, sincerity, learning spree, good subject knowledge, eye for detail, good teamwork, writing skills and understanding of indicators and measurement designs

Suggestions for Improvement: Programmatic knowledge, scientific writing and analytics

Suggestions for Institute (course curriculum, industry interaction, placement, alumni):

Putting more statistical analytical practical sessions in the curriculum and exposing the students more to public health system and functions of India may be great.

Date: 26.06.2024
Place: Patna, Bihar

Signature of the Officer-in-Charge/ Organization Mentor (Dissertation)

ACKNOWLEDGEMENT

My internship with **Piramal Swasthya Management and Research Institute** in **Bihar** was a fantastic opportunity for learning and professional development. As a result, I consider myself fortunate to have been allowed to be a part of it. I'm also grateful for the opportunity to meet so many wonderful people and professionals who guided me through my internship term.

Keeping in mind the preceding, I would like to take this opportunity to express my heartfelt gratitude and special thanks to **Dr. Tanmay Mahapatra (Director, Data and Learning Piramal Swasthya Management and Research Institute)**, who, despite being extremely busy with his duties, took the time to hear, guide, and keep me on the right track, allowing me to carry out my project at their esteemed organization and extending during the training.

I would like to express my heartfelt gratitude to **Dr. Shuchi Shree Akhauri (RMLE manager)**, **Dr. Tulika Rajan (Program leader) and Mr. Ashish Kashyap (Senior Program Leader)** for their careful and valuable guidance, which was extremely valuable for my study both theoretically and practically and arranging all facilities to make my project easier. Their invaluable insights, constructive feedback, and continuous encouragement have greatly enriched my learning experience.

I am immensely grateful to **Dr. Rupsa Banerjee (Assistant Professor, IIHMR Delhi)**, my mentor who helped me immensely throughout the tenure of my IIHMR journey and this internship, her expertise, guidance, and unwavering support have been instrumental in shaping my understanding of the healthcare landscape and project management.

It is my heartfelt pleasure to express my heartfelt appreciation to **Dr. Sutapa Bandyopadhyay Neogi (Director, IIHMR Delhi)**, **Dr. Sumesh Kumar (Associate Dean Academics and Students Affairs, IIHMR Delhi)**, for their support and guidance in providing such great opportunity.

Sincerely
Dr Jyotsna Rai

Contents

Abbreviations

FP	Family planning
CPR	Contraceptive Prevalence Rate
mCPR	Modern Contraceptive Prevalence Rate
NFHS	National Family Health Survey
TFR	Total Fertility Rate
HTSP	Healthy Timing and Spacing Of Pregnancy
PSU	Primary Sampling Unit
SSU	Secondary Sampling Unit
TSU	Tertiary Sampling Unit
SHG	Self Help Group
FLW	Frontline Worker

About The Organization

Piramal Swasthya is focused on bridging public healthcare gaps by supplementing and complementing Government of India's vision to meet Universal Health Coverage. Piramal Swasthya is one of the largest not-for-profit organizations in India – in the primary public healthcare space with a focus on Maternal Health, Child and Adolescent Health, Non-communicable Diseases. Piramal Swasthya has over a decade-long experience in operating several healthcare innovations at scale, which are addressing the primary healthcare needs of most underserved and marginalized populations across India. Piramal Swasthya is operational in 21 States in India through 35 innovative public healthcare delivery programs and has served more than 112 million beneficiaries so far.

Piramal Swasthya employs 2500+ employees (including over 250 medical doctors) who work with Seva Bhav.

The Group's core values of **Knowledge, Action, Care and Impact** guide the organisation in carrying out its responsibilities towards society.

The Foundation believes in collaborating with like-minded partners to bring positive changes in the society. It nurtures projects that are scalable and ensure to deliver sustainable impact.

The Foundation currently works across **21 states**, mostly in p**artnership with state governments**. It has developed innovative approaches and programmes in every vertical and has built strong partnerships with governments, technology partners and international organisations (including with Michael & Susan Dell Foundation, Harvard Graduate School of Education and World Diabetes Foundation). The projects are implemented through **Piramal Swasthya, Piramal Sarvajal and Piramal Foundation of Education Leadership.**

Core areas of focus

- Health
- Water
- Education
- Youth Empowerment

Abstract

Background: Despite significant efforts and advancement, India is yet to meet all of its family planning objectives like population stabilization. In a nation with low overall contraceptive use or where many couples rely on traditional methods for contraceptives, most of them are aware about modern contraceptive options, only 56.5% of them reported to have ever used a modern form of contraceptive hence it is important to understand the factors that determine contraceptive use behavior among married women to improve reproductive health outcome.

Objective: The study was conducted to assess the proportion of married women practicing sustained contraceptive use in Bihar and to understand the factors that are associated with sustained contraceptive use behavior among married women of reproductive age.

Methods: The study design is secondary data analysis, the study used the data collected for Bihar Integrated Family Planning Survey (BIFS)conducted during 2021 for quantitative analysis.

Results: The study's findings have significant implications for policymakers and healthcare providers, it underscores the importance of considering the complex interplay between exposure variables in understanding the determinants of sustained modern contraceptive use among married women.

Conclusion: Targeted interventions aimed at improving education, economic empowerment, knowledge, and access to healthcare services related to FP can increase the use of modern contraceptives among married women. Additionally, promoting programmatic exposures, interspousal communication, and women's autonomy can also contribute to sustained modern contraceptive use.

Keywords: Sustained contraceptive user, Modern method, Family Planning

Topic: - **Sustained contraceptive use among married women of reproductive age: Patterns and underlying factors**

Background

In 1952, India marked a pivotal moment by becoming the first nation in the world to launch a nationwide program for family planning. This was in need to achieve demographic goals by reducing fertility, which would also contribute to the nation's economic growth and monitor the limited resources(1).Since the program's inception, the total fertility rate and population growth rate have been steadily dropping(2).Over the years the focus of the policy has shifted from achieving demographic equilibrium to promoting reproductive health and lowering the death and morbidity rates of mothers, newborns, and children(3).By framing sexual and reproductive health within the context of human rights the International Conference on Population and Development in Cairo (ICPD 1994) brought a significant policy change in family planning(4).Globally, in 2022, 77.5% of women of reproductive age (those between the ages of 15 and 49) said that they were pleased with the family planning options available to them (SDG indicator 3.7.1). There is a 10-percentage point increase from 1990 (67%), this slow increase can be due to various factors including lack of options for available methods, barriers to service access based on gender, fear or facing of negative effects, cultural or religion resistance, poor quality of available interventions and restrictions on access to interventions, especially for young, impoverished, and single individuals. Demand for contemporary forms of contraception has increased as these limitations are removed in various areas(5).Over forty years have passed since the inception of the family planning programme in our nation(6).The national contraceptive prevalence rate

(CPR) is 67% and mCPR is 56.5% among women who are married at the moment(7).Female sterilization is the widely used family planning method in India by majority of population(8).Female sterilization accounted for 37.9% of cases in NFHS5 compared to 36.0% in NFHS4 (9).Generally, women in India who use reversible contraceptive methods belongs to distinct socio-demographic statuses as compared to those who use irreversible methods. Women using modern reversible methods are well educated and have a good economic status and are more likely to be urban than women who use traditional or limiting methods (10).

The usage of the modern reversible method has been moderate and distorted in spite of increase in the awareness of contraception and the presence of various contraceptive methods. It is a matter of concern that contraceptive discontinuation and low usage of modern reversible method is higher among younger women due to failure of contraceptive method within a year of its usage and high unmet needs for family planning which can lead to unintended pregnancy which further leads to maternal and child health problems, financial stress and pregnancies which may increase the risk of unsafe abortions(11,12,13).There can be various reasons for methods switching or discontinuation of a contraceptive method such as method failure, family size, pressure from family, adverse effects, desire for a son , partner's resistance, sexual experience, or level of knowledge about any contraceptive method and this can be reduced by increasing contraceptive choices (Basket-of-choice) and providing proper information to couples which improves the overall quality of care(14).It is seen that about 2/3rd of women who use the reversible method, discontinue within 12 months of its usage, while the traditional method has a higher probability of method failure and discontinuation which leads to unwanted birth. In India, the discontinuation rate of contraceptive use after 12 months is highest for condoms followed by pills, injectables, and IUDs, and is lowest for implant (15). Using contraceptives not only saves the lives of the mother but also of child by lowering high-risk associated with pregnancy, maternal and child mortality, and under-nutrition among children, increasing child schooling, and improving the family economic well-being (16,17).

Rationale

The state of Bihar, which lies in the centre of northern India, serves as the current study location with a TFR of 3 and m-CPR of 44.4% (18). According to Census 2011 it is the third most populated state in the nation.

The focus of FP within the state has been mostly on female sterilization and this overemphasis has led to low use of the spacing methods. In recent years, the family planning movement has shifted its focus to prioritize methods for delaying and spacing pregnancies rather than only limiting ones (19,20). Indian family planning initiatives provide six contemporary contraceptive options to space, delay, and limit births (21). Despite a growth in the use of spacing methods like pills and condoms. Female sterilisation still dominates the method mix in India and accounts for more than two-thirds (67.07%) of the contemporary contraceptives used by Indian women(22,23).A complex interaction of sociocultural, economic, and healthcare-related variables influences the usage of contraceptives in Bihar(24).A multifaceted strategy is needed to identify these issues, including raising awareness, strengthening the healthcare system, empowering women via economic and educational possibilities, and involving communities in the promotion of healthy reproductive practices. In order to increase the use of contraceptives and eventually improve the state of reproductive health in Bihar, efforts must be made to remove these obstacles.

Objectives

- To Assess proportion of married women practicing sustained contraceptive use in Bihar.
- To understand the factors that are associated with sustained contraceptive use behavior among married women.

Methodology

Study design- Secondary Data Analysis

Details of primary study

Study population- Currently married women of Reproductive age (15-49 years).

- **Inclusion Criteria -** Currently married women of Reproductive age (15-49 years) and who have lived in chosen household for at least Three months.
- **Exclusion Criteria** - Widowed, divorced, separated and visitors/guests as well as working women residing in a hostel like arrangement.

Sample size- Total sample size= **22800** (600*38) (600 per district)
Following formula was to calculate the sample size for a single proportion with a finite population correction:
n = (DE * Z^2_α/2 * p(1-p) + (Z_β + 1.96) ^2 * d^2) / (d^2). Assuming an α error of 5%, β error of 20%(power=0.8) and absolute precision of 10%, the desired sample size for each district turned out to be 384 which got inflated to 576 after incorporating a design effect of 1.5. To account for 2-4% data loss, a round figure of 600 per district was decided upon.

Sampling - Multistage Probability sampling method was used in each district.
A multi-stage probability sampling procedure (detailed below) was used in each district.

- PSU was block, SSU was AWC in rural areas/ward in urban area and TSU was buildings/structure.
- 5 blocks (PSUs) were selected from each district using simple random sampling.
- Overall, 120 SSUs (AWC/Wards) were selected using stratified sampling design from each of 38 districts based on the urban-rural proportional allocation (as per Census) in those blocks. Divided Blocks into two categories: -
    - Rural Blocks (only rural settlements): Used SRS to select AWCs from a list of all AWCs in the block (number selected based on rural-urban allocation).

- Mixed Blocks (both urban and rural settlements blocks): the numbers of AWC areas and Wards to be selected were determined based on the urban-rural proportional allocation (as per Census) in those blocks.

- 5 TSUs were sampled with a random start using systematic sampling in each SSU.
- **Data collection-** Interviews were conducted by trained interviewers with the help of pre-tested structured digital questionnaire in Hindi, under the Bihar Technical Support Program (BTSP)working closely with the government of Bihar.
- **Data analysis-** Data was cleaned and analyzed using SAS9.4. Descriptive (frequency, proportions and the corresponding 95% Confidence Intervals (95%CIs) analysis was conducted to determine the distribution of various parameters. A stratified analysis followed by chi sq was conducted to determine the distribution of outcome variable across exposure groups as well as the statistical significance of the association**.**

Outcome variables: - for this particular analysis sustainable user include

Among parity =0 at the time of first MC (modern contraception) use [excluding sterilization method users]	**Previously delaying and now spacing**
Among parity >0 at the time of first modern spacing method use	**Ever used spacing method and currently a modern (reversible and irreversible) method user**
Among parity >0 at the time of first modern spacing method use	**Ever used spacing method and currently a spacing method user**
Among parity >0 at the time of first modern spacing method use	**Previously delaying or spacing and currently sterilized**

***Sustained Contraceptive User:** A married women who has used a method for delaying 1stpregnancy and who has used spacing method.

Results

Socio-demographic Profile

Among the 22668 women of reproductive age: 20-34 years of age group comprised most respondents (62.5%). Most of them were Hindu (87.8%), with maximum (63.7%) belonging to OBC category. The major occupation of the respondent was not working i.e. 81.8% and most of the respondent's husband were unskilled labour i.e. 44.4% followed by salaried/business as occupation.

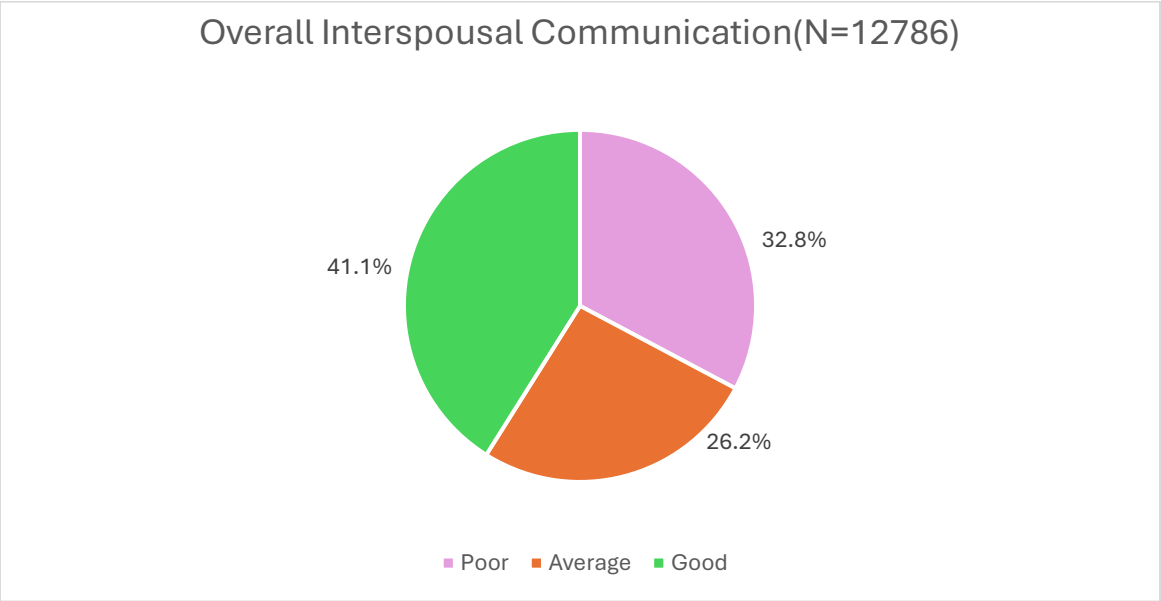
89.8% of Respondent resides in urban area and 21.8% of respondent husband is a migrant.

Table 1: Distribution of demographic profile of the study population

Age (22668)	n (%)
15-19	2.4%
20-34	62.5%
35-49	35.1%
Religion (22668)	
Hindu	87.8%
Others	12.2%
Caste (22668)	
SC/ST	19.9%
OBC	63.7%
Others	16.4%
Education status (22668)	
No schooling	49.2%
Up to 8 years	21%
>8years	29.8%
Wealth Index (22668)	
Low	33.3%
Middle	33.3%

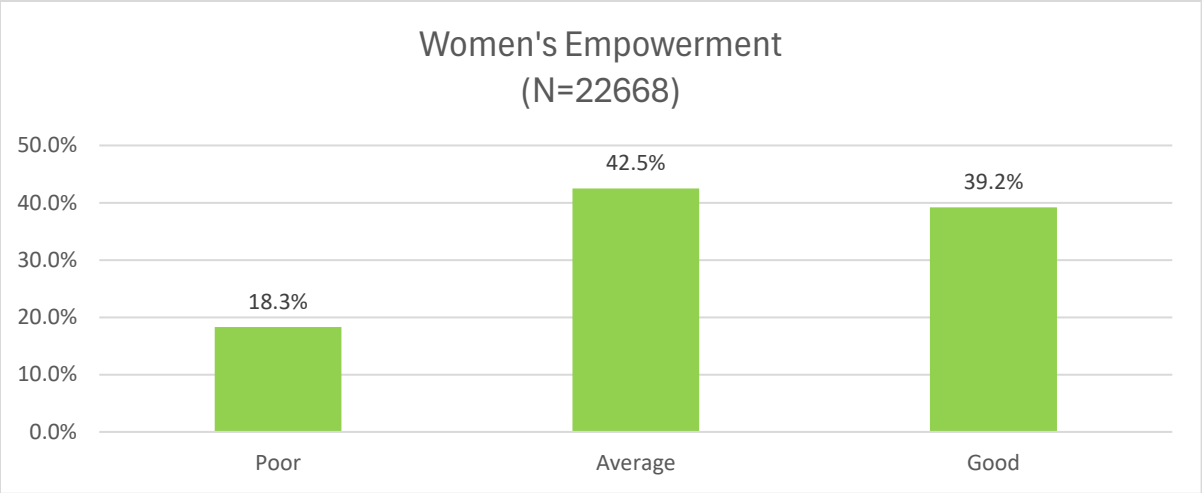
High	33.3%
Respondent Occupation (22668)	
Not working	81.8%
Skilled labour	1.4%
Unskilled labour	12.5%
Salaried/Business	4.3%
Husband Occupation (22668)	
Not working	3.2%
Skilled labour	17.6%
Unskilled labour	44%
Salaried/Business	35.2%

Interspousal Communication: Included family planning related discussion with husband recently (in last 12 months) or ever.



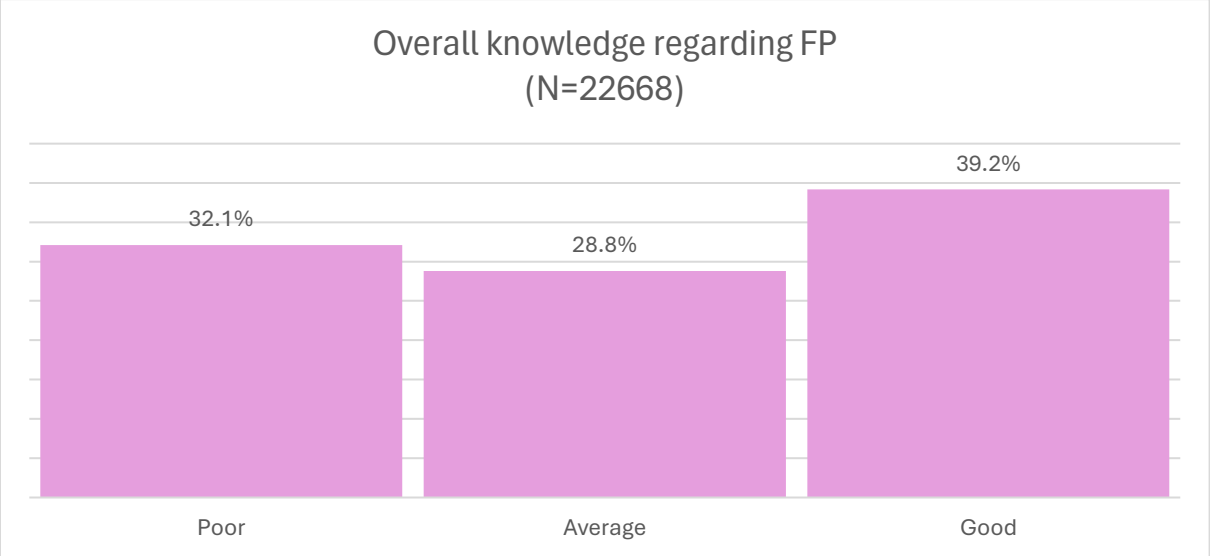
*Among 12786 respondents Overall Interspousal communication was good i.e. 41.1%.

Women's Empowerment: Includes various elements like mobility, economic independence, and decision-making.



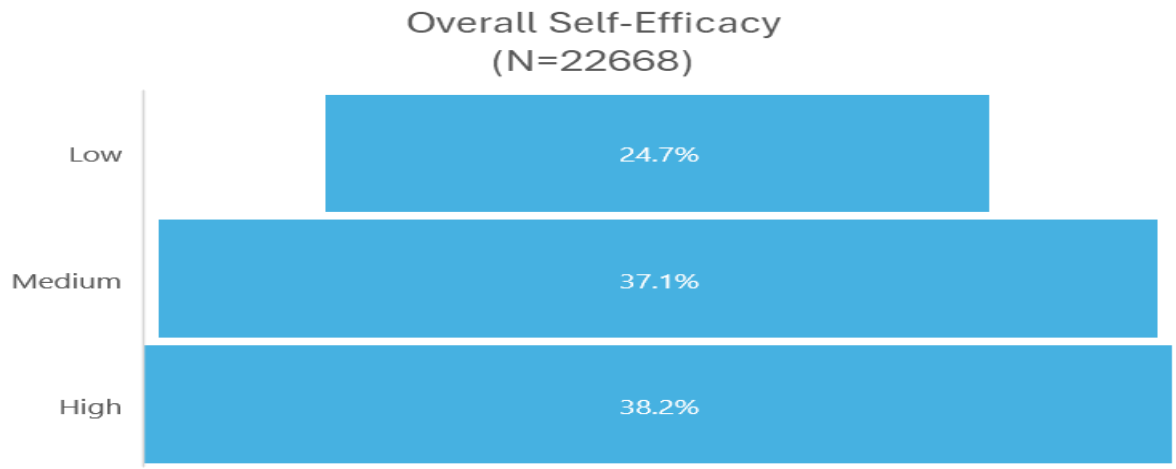
*Among 22668 respondent women empowerment is found to be average i.e. 42.5%.

Overall, Knowledge regarding FP: It comprises knowledge regarding correct use of FP method, Healthy Timing and Spacing of Pregnancy and its benefits to women, child and family.



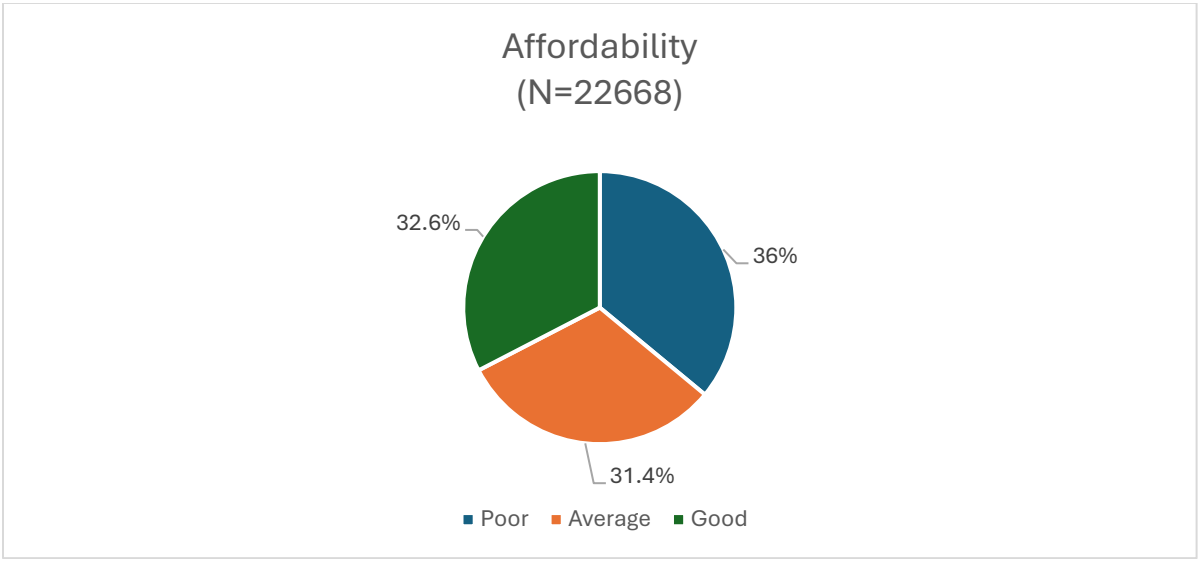
*Among 22668 respondent the overall knowledge regarding FP is good i.e. 39.2%.

Overall Self-Efficacy: Among 22668 respondent the overall self-efficacy is high i.e. 38.2%.



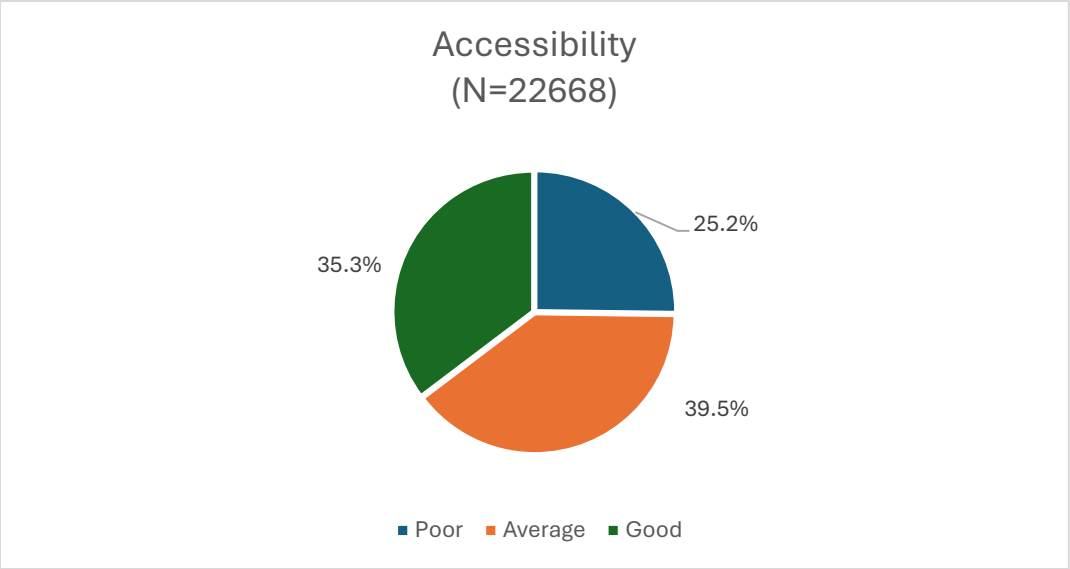
*Self-efficacy refers to respondent confidence in their ability to perform specific behavior related to FP.

Affordability: The affordability of FP techniques was determined based on whether the respondent could afford FP services (like female/male sterilization, IUCD and injectables services offered at health institutions.



*Among 22668 respondent 36% reported poor affordability for FP services.

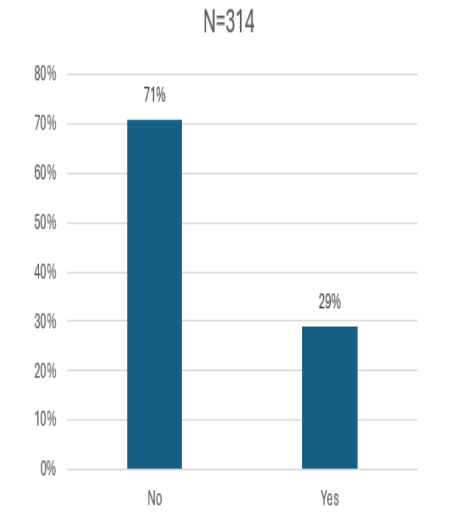
Accessibility: It was determined by how easily FP services was accessible in terms of distance to health facility.



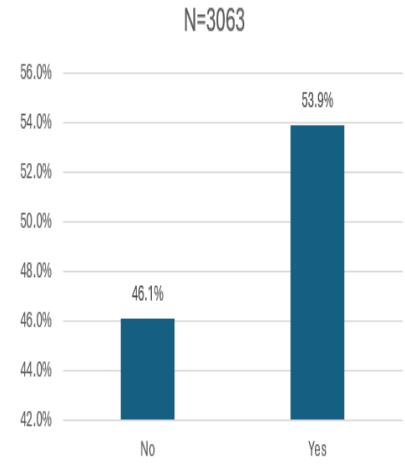
*Majority of response was 39.5% i.e. average for accessibility.

Proportion of sustain contraceptive use: -

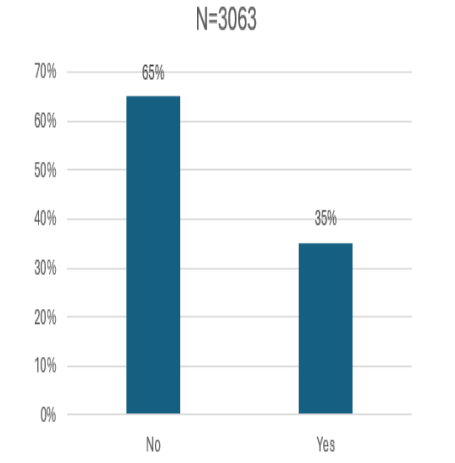
Among 0 parity at the of 1st use of delaying method and now spacing method



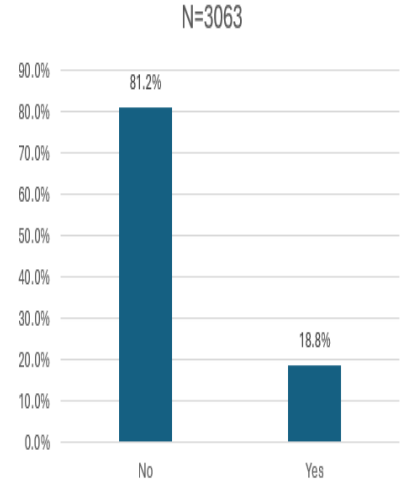
Among parity >0 Ever used spacing method and currently a modern (reversible and irreversible) method user



Among parity >0 Ever used spacing method and currently a spacing method user



Among parity >0 Previously delaying or spacing and currently sterilized



Factors associated with sustained contraceptive use: -

			Among parity =0 at the time of first MC				Among parity >0 Ever used spacing				Among parity >0 Ever used spacing				Among parity >0 Previously delaying or			
Domain	Variable		2021				2021				2021				2021			
		Variable n	N	n	%	Pvalue	N	n	%	Pvalue	N	n	%	Pvalue	N	n	%	Pvalue
SD	Age of respondent	15-19 y	9	1	11.1	<.0001	32	16	49.9	<.0001	32	16	49.9	<.0001	32	0	.	<.0001
		20-34 y	261	74	28.4		2149	1128	52.5		2149	834	38.8		2149	294	13.7	
		35-49 y	44	16	36.4		882	506	57.4		882	223	25.3		882	283	32.1	
	Religion	Others	44	13	29.5	0.6095	412	206	50.0	<.0001	412	183	44.4	<.0001	412	23	5.6	<.0001
		Hindu	270	78	28.9		2651	1444	54.5		2651	890	33.6		2651	554	20.9	
	Caste	SC/ST	47	10	21.3	<.0001	488	254	52.1	<.0001	488	159	32.6	<.0001	488	95	19.5	<.0001
		OBC	195	64	32.8		1890	1020	54.0		1890	656	34.7		1890	364	19.3	
		Others	72	17	23.6		685	376	54.9		685	258	37.7		685	118	17.2	
	Respondent education	NO educat	66	18	27.3	<.0001	938	509	54.3	<.0001	938	295	31.4	<.0001	938	214	22.8	<.0001
		UPTO 8 YE	58	12	20.7		709	362	51.1		709	226	31.9		709	136	19.2	
		>8 YEARS	190	61	32.1		1416	779	55.0		1416	552	39.0		1416	227	16.0	
	Wealth index	Low	80	23	28.8	<.0001	747	374	50.1	<.0001	747	232	31.1	<.0001	747	142	19.0	0.5818
		Middle	86	21	24.4		919	486	52.9		919	314	34.2		919	172	18.7	
		High	148	47	31.8		1397	790	56.5		1397	527	37.7		1397	263	18.8	
	Respondent occupation	Not worki	284	84	29.6	<.0001	2570	1358	52.8	<.0001	2570	929	36.1	<.0001	2570	429	16.7	<.0001
		Skilled labo	4	2	50.1		59	29	49.1		59	15	25.4		59	14	23.8	
		Unskilled l	10	1	10.0		243	137	56.4		243	63	25.9		243	74	30.5	
		Salaried/B	16	4	25.0		191	126	66.0		191	66	34.5		191	60	31.4	
	Husband occupation	Not worki	9	3	33.4	<.0001	102	53	52.0	<.0001	102	42	41.2	<.0001	102	11	10.8	<.0001
		Skilled labo	37	7	18.9		516	266	51.5		516	171	33.1		516	95	18.4	
		Unskilled l	97	24	24.8		1080	603	55.8		1080	359	33.2		1080	244	22.6	
		Salaried/B	171	57	33.3		1365	728	53.3		1365	501	36.7		1365	227	16.6	
obstetric history	Any Aborti	No	237	73	30.8	<.0001	2191	1198	54.7	<.0001	2191	790	36.0	<.0001	2191	408	18.6	0.0027
		Yes	77	18	23.4		872	452	51.8		872	283	32.4		872	169	19.4	
	History chi	No	218	71	32.6	<.0001	2089	1142	54.7	<.0001	2089	757	36.2	<.0001	2089	385	18.4	<.0001
		Yes	96	20	20.8		974	508	52.2		974	316	32.4		974	192	19.7	
	SHG	No	225	68	30.2	<.0001	2031	1078	53.1	<.0001	2031	778	38.3	<.0001	2031	300	14.8	<.0001
		Yes	89	23	25.9		1032	572	55.4		1032	295	28.6		1032	277	26.9	
	Migration	No	253	78	30.8	<.0001	2451	1391	56.8	<.0001	2451	903	36.8	<.0001	2451	488	19.9	<.0001
		Yes	61	13	21.3		612	259	42.3		612	170	27.8		612	89	14.5	
	FLW Interactio	No	294	84	28.6	0.0002	2741	1463	53.4	<.0001	2741	923	33.7	<.0001	2741	540	19.7	<.0001
		Yes	20	7	35.0		322	187	58.1		322	150	46.6		322	37	11.5	
	Media Exposure	No.	219	61	27.9	<.0001	2212	1157	52.3	<.0001	2212	750	33.9	<.0001	2212	407	18.4	<.0001
		Yes	95	30	31.6		851	493	57.9		851	323	37.9		851	170	20.0	

			Among parity =0 at the time of first MC				Among parity >0 Ever used spacing				Among parity >0 Ever used spacing				Among parity >0 Previously delaying or			
Domain	Variable		2021				2021				2021				2021			
		Variable n	N	n	%	Pvalue	N	n	%	Pvalue	N	n	%	Pvalue	N	n	%	Pvalue
Women's Empowerment	Mobility (At least 2	Poor	138	33	23.9	<.0001	1117	568	50.9	<.0001	1117	431	38.6	<.0001	1117	137	12.3	<.0001
		Average	54	13	24.1		520	279	53.7		520	192	36.9		520	87	16.8	
		Good	122	45	36.9		1426	803	56.3		1426	450	31.5		1426	353	24.8	
	Economic independ	Poor	13	2	15.4	<.0001	111	60	54.0	<.0001	111	46	41.4	<.0001	111	14	12.6	<.0001
		Average	283	83	29.3		2706	1452	53.7		2706	959	35.4		2706	493	18.2	
		Good	18	6	33.4		246	138	56.1		246	68	27.6		246	70	28.5	
	Decision making (At least	Poor	103	28	27.2	<.0001	773	414	53.6	0.0129	773	284	36.7	<.0001	773	130	16.8	<.0001
		Average	56	14	25.0		485	266	54.8		485	180	37.1		485	86	17.7	
		Good	155	49	31.6		1805	970	53.7		1805	609	33.7		1805	361	20.0	
	Women's Empower	Poor	75	12	16.0	<.0001	510	270	52.9	<.0001	510	205	40.2	<.0001	510	65	12.8	<.0001
		Average	140	48	34.3		1341	699	52.1		1341	486	36.2		1341	213	15.9	
		Good	99	31	31.3		1212	681	56.2		1212	382	31.5		1212	299	24.7	
Interspousal communication	Interspousal communi	Poor	66	18	27.3	<.0001	547	230	42.1	<.0001	547	230	42.1	<.0001				
		Average	83	27	32.5		561	236	42.1		561	236	42.1					
		Good	156	46	29.5		1292	607	47.0		1292	607	47.0					
	Interspousal communi	Poor	117	30	25.6	<.0001	985	408	41.4	<.0001	985	408	41.4	<.0001				
		Average	86	20	23.3		670	276	41.2		670	276	41.2					
		Good	102	41	40.2		745	389	52.2		745	389	52.2					
	Interspousal communi	Poor	66	18	27.3	<.0001	544	230	42.3	<.0001	544	230	42.3	<.0001				
		Average	66	17	25.7		546	218	39.9		546	218	39.9					
		Good	173	56	32.4		1310	625	47.7		1310	625	47.7					
Self efficacy	Overall Self efficacy	Low	62	24	38.7	<.0001	487	240	49.3	<.0001	487	167	34.3	<.0001	487	73	15.0	<.0001
		Medium	118	30	25.4		1154	616	53.4		1154	426	36.9		1154	190	16.5	
		High	134	37	27.6		1422	794	55.8		1422	480	33.7		1422	314	22.1	
Knowledge	Overall knowledge	Poor	60	21	35.0	<.0001	843	416	49.4	<.0001	843	240	28.5	<.0001	843	176	20.9	<.0001
		Average	169	44	26.0		1272	678	53.3		1272	445	35.0		1272	233	18.3	
		Good	85	26	30.6		948	556	58.6		948	388	40.9		948	168	17.7	
	Overall knowledge	Poor	85	26	30.6	<.0001	881	445	50.5	<.0001	881	303	34.4	<.0001	881	142	16.1	<.0001
		Average	92	22	23.9		1023	536	52.4		1023	350	34.2		1023	186	18.2	
		Good	137	43	31.4		1159	669	57.7		1159	420	36.2		1159	249	21.5	
	Overall knowledge	Poor	44	15	34.1	<.0001	565	282	49.9	<.0001	565	185	32.8	<.0001	565	97	17.2	<.0001
		Average	76	20	26.3		803	400	49.8		803	244	30.4		803	156	19.4	
		Good	194	56	28.9		1695	968	57.1		1695	644	38.0		1695	324	19.1	
Accessibili	Accessibili	Poor	70	23	32.9	<.0001	481	210	43.7	<.0001	481	143	29.7	<.0001	481	67	13.9	<.0001
		Average	117	30	25.7		1024	559	54.6		1024	343	33.5		1024	216	21.1	
		Good	127	38	29.9		1558	881	56.5		1558	587	37.7		1558	294	18.9	
Affordabili	Affordabli	Poor	87	24	27.6	<.0001	701	334	47.6	<.0001	701	216	30.8	<.0001	701	118	16.8	<.0001
		Average	83	21	25.3		813	451	55.5		813	277	34.1		813	174	21.4	
		Good	144	46	32.0		1549	865	55.8		1549	580	37.4		1549	285	18.4	
	Type of ar	Rural	45	16	35.6	<.0001	410	226	55.1	0.0009	410	155	37.8	<.0001	410	71	17.3	<.0001
		Urban	269	75	27.9		2653	1424	53.7		2653	918	34.6		2653	506	19.1	

Discussion

The current study's findings on the positive association between media exposure, education, health worker involvement, and affordability with sustained contraceptive usage are mostly consistent with the larger literature on determinants of contraceptive usage, emphasising the role of media exposure, education, health professional participation, affordability, good communication and shared decision-making between partners regarding family planning as a key factor in the current study, which is supported by some studies(25,26). However, the study findings also reveal distinct patterns associated to migration, reproductive history, rural location, and spousal communication, highlighting the need of context-specific knowledge of contraceptive usage dynamics (27).

The factors influencing contraceptive use are remarkably similar across diverse settings, but programs must still tailor interventions to address context-specific barriers related to culture, region education level and other socio-economic factors. A one -size -fits all approach is unlikely to be effective (28).

Improving contraceptive use requires interventions at multiple levels - individual, partner, family, community, and health system. Combining demand generation, service delivery, and social norm change is more effective than isolated interventions. Policies and programs must address the complex interplay of factors that shape reproductive decision-making (29,30).

Conclusion

- Factors which consistently show the same pattern across all 4 groups: -Exposure to media, no migration, and Good Interspousal communication(overall).
- There are some factors that shows consistent pattern across first three groups: -Education>8years Interaction with FLW, good affordability, no history of abortion, no pregnancy wastage, and resides in rural area.
- Overall, this study underscores the importance of considering the complex interplay between exposure variable in understanding the determinants of sustained modern contraceptive use among married women.
- The study's findings have significant implications for policymakers and healthcare providers.
- It suggests that targeted interventions aimed at improving education, economic empowerment, knowledge, and access to healthcare services related to FP can increase the use of modern contraceptives among married women. Additionally, promoting programmatic exposures, interspousal communication, and women's autonomy can also contribute to sustained modern contraceptive use.

References

1. Lane SDJSS, Medicine. From population control to reproductive health: An emerging policy agenda. 1994;39(9):1303-14.

2. World Economic Forum. India's fertility rate has halved since 1980. This is a good sign for the economy; 2018 [cited 2021 Jan 5]. Available from: https://www.weforum.org/agenda/2018/10/un-report-says-india-s-fertility-ratehas-halved-since-1980-hails-achievement/.

3. MoHFW. Family planning- National Health Mission. In: Ministry of Health and Family Welfare GoI, editor. New Delhi.

4. Sen G, Kismödi E, Knutsson AJS, Matters RH. Moving the ICPD agenda forward: challenging the backlash. Taylor & Francis; 2019. p. 319-22.

5. United Nations Department of Economic and Social Affairs, Population Division (2022). World Family Planning 2022: Meeting the changing needs for family planning: Contraceptive use by age and method. UN DESA/POP/2022/TR/NO. 4.

6. Chaurasia, A. R. (2021). Family Planning Performance in India: 1992–2016. Indian Journal of Human Development, 15(2), 229-251. https://doi.org/10.1177/09737030211025358

7. MohFW. National Family Health Survey, NFHS-5 Factsheet. In: Ministry of Health and Family Welfare GoI, editor. New Delhi 2019.

8. MoHFW. NATIONAL FAMILY HEALTH SURVEY (NFHS-3). In: Ministry of Health and Family Welfare GoI, editor. New Delhi2005-06.

9. Speizer IS, Nanda P, Achyut P, Pillai G, Guilkey DKJJoUH. Family planning use among urban poor women from six cities of Uttar Pradesh, India. 2012;89:639-58.

10. Bongaarts J. United Nations Department of Economic and Social Affairs, Population Division World Family Planning 2020: Highlights, United Nations Publications, 2020. 46 p. Wiley Online Library; 2020.

11. Mission Parivar Vikas" in 145 High Focus districts for improved family planning services [Internet]. 2016. Available from: https://www.pib.gov.in/newsite/PrintRelease.aspx?relid=151049.

12. Dadzie LK, Seidu A-A, Ahinkorah BO, Tetteh JK, Salihu T, Okyere J, et al. Contraceptive discontinuation among women of reproductive age in Papua New Guinea. 2022;7(1):8.

13. Castle S, Askew IJCdr, challenges,, solutions. Family Planning 2020 and Population Council. 2015.

14. Barden-O'Fallon J, Speizer IS, Cálix J, Rodriguez FJSifp. Contraceptive discontinuation among Honduran women who use reversible methods. 2011;42(1):11-20.

15. Curtis S, Evens E, Sambisa WJIpos, health r. Contraceptive discontinuation and unintended pregnancy: an imperfect relationship. 2011;37(2):58.

16. Machiyama K, Casterline JB, Mumah JN, Huda FA, Obare F, Odwe G, et al. Reasons for unmet need for family planning, with attention to the measurement of fertility preferences: protocol for a multi-site cohort study. 2017;14:1-11.

17. Belete N, Zemene A, Hagos H, Yekoye AJBwsh. Prevalence and factors associated with modern contraceptive discontinuation among reproductive age group women, a community based cross-sectional study in Humera town, northern Ethiopia. 2018;18:1-8.

18. http://rchiips.org/nfhs/factsheet_nfhs-5.shtml

19. Gwatkin DRJP, Review D. Political will and family planning: the implications of India's emergency experience. 1979:29-59.

20. Visaria L, Jejeebhoy S, Merrick TJIfpp. From family planning to reproductive health: challenges facing India. 1999:S44-S9.

21. Ministry of Health and Family Welfare GoI. Annual Report 2019-2020. New Delhi; 2019.

22. Pradhan MR, Dwivedi LKJS, Healthcare R. Changes in contraceptive use and method mix in India: 1992–92 to 2015–16. 2019;19:56-63.

23. International Institute of Population Sciences. National Family Health Survey - 5 (2019-21). Available from: http:// rchiips.org/nfhs/factsheet_NFHS-5.shtml.

24. Down to Earth. Available from: Use of contraceptives in Bihar doubles in 5 years: NFHS-5 (downtoearth.org.in)

25. Das, P., Samad, N., Al Banna, H. *et al*. Association between media exposure and family planning in Myanmar and Philippines: evidence from nationally representative survey data. *Contracept Reprod Med* **6**, 11 (2021). https://doi.org/10.1186/s40834-021-00154-9

26. Preethy D’Souza, Julia V. Bailey, Judith Stephenson & Sandy Oliver (2022): Factors influencing contraception choice and use globally: a synthesis of systematic reviews, The European Journal of Contraception & Reproductive Health Care, DOI: 10.1080/13625187.2022.2096215

27. Chola, M., Hlongwana, K. & Ginindza, T.G. Patterns, trends, and factors associated with contraceptive use among adolescent girls in Zambia (1996 to 2014): a multilevel analysis. *BMC Women's Health* **20**, 185 (2020). https://doi.org/10.1186/s12905-020-01050-1

28. D’Souza, P., Bailey, J. V., Stephenson, J., & Oliver, S. (2022). Factors influencing contraception choice and use globally: a synthesis of systematic reviews. *The European Journal of Contraception & Reproductive Health Care*, *27*(5), 364–372. https://doi.org/10.1080/13625187.2022.2096215

29. National Research Council (US) Working Group on Factors Affecting Contraceptive Use. Factors Affecting Contraceptive Use in Sub-Saharan Africa. Washington (DC): National Academies Press (US); 1993. 1, Introduction. Available from: https://www.ncbi.nlm.nih.gov/books/NBK236407/

30. D’Souza, P., Bailey, J. V., Stephenson, J., & Oliver, S. (2022). Factors influencing contraception choice and use globally: a synthesis of systematic reviews. *The European Journal of Contraception & Reproductive Health Care*, *27*(5), 364–372. https://doi.org/10.1080/13625187.2022.2096215

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