

Enhancing Family Planning Awareness and Use: The Power of Self-Instructional Modules (SIM)

¹ Shashi Chauhan, ² Paridhee Gupta, ³ Priyanka Koshti

¹ Independent Researcher, Health and Nursing 115, NCD Vivanta Central Court Mokila, Hyderabad

² Paridhee Gupta, Assistant Professor (OBG), Indore Nursing College, Gendalal Bam Parisar, Village Dehri, Rangwasa Indore (M.P)

³ Priyanka Koshti, HOD (MSN), Indore Nursing College, Gendalal Bam Parisar, Village Dehri, Rangwasa Indore (M.P)

Abstract:

Despite high awareness of contraceptive methods, India's contraceptive prevalence rate remains low, highlighting a gap between knowledge and practice. This study explores the impact of self-instructional modules on the knowledge, understanding, and confidence in family planning methods among eligible couples in urban slum areas of Indore, India. Employing an evaluative approach with a one-group pre-test and post-test design, fifty eligible couples were selected using non-probability convenient sampling. Data were gathered via structured knowledge questionnaires before and after the module's implementation. Analysis revealed a significant improvement in knowledge, with a highly significant difference between the mean post-test and pre-test knowledge scores. The audio-visual self-instructional module was effective and well-received, suggesting its potential as a valuable tool for enhancing family planning education. Further research is recommended to explore various instructional methods for better outcomes.

Keywords: Family Planning; Self-Instructional Modules; Pre-test and Post-test Design; Public Health Education

1. Introduction

India, grappling with its vast population, faces numerous challenges in managing population growth and implementing effective family planning methods (Starbird et al., 2016). Projections suggest India's population could reach 625 million in the next decade (Muttreja & Singh, 2018). To tackle this issue, India must prioritize and invest in comprehensive family planning programs promoting contraceptive use, sexual education, and reproductive health services. It's imperative to address the unmet need for contraception and ensure access to quality family planning methods across all states (Mandara, 2012). Recognizing family planning as a human rights issue is crucial, empowering women with agency, choice, and access to reproductive services (Muttreja & Singh, 2018). Integrating family planning into non-health sector projects, such as natural resource management, can improve environmental indicators and contribute to gender equality, child health, education outcomes, and poverty reduction. Despite facing significant challenges, India can achieve sustainable population growth and improved reproductive health outcomes by prioritizing family planning and implementing comprehensive strategies (Khan & Islam, 2022).

Family planning, a critical aspect of reproductive health, empowers individuals to make informed decisions about their families and lives (Starbird et al., 2016). The World Health Organization defines family planning methods as techniques for contraceptive use or

infertility treatment to achieve a desired family size (Kwawukume et al., 2022). It's essential to tailor family planning methods to individual needs and preferences, with guidance from healthcare professionals (Starbird et al., 2016). Family planning encompasses various methods and approaches beyond contraception, including fertility treatment, aiming to provide individuals with tools and information for informed choices (Kwawukume et al., 2022). Efforts by the government of India have focused on implementing family planning methods, including promoting contraceptive use, enhancing access to services, and raising awareness about reproductive health. Studies emphasize the importance of comprehensive family planning services in addressing diverse population needs and promoting informed decision-making (Sharma et al., 2021). Increased awareness and access to family planning methods have contributed to declining fertility rates in several Indian states, according to the National Family Health Survey (NFHS). Family planning encompasses a wide range of methods, services, and information to help individuals make informed choices about their sexual and reproductive health (Starbird et al., 2016). The use of self-instructional modules to educate individuals about family planning methods has gained attention in recent years (Smith et al., 2018).

Current trends indicate rising internationalisation and population. Illiterates are unaware of the facts about contraception. Thus, this study is required to regulate the population and STDs. Another key goal is to identify the reasons for contraceptive use and discontinuation. Given past results, more investigation into the impact of self-instructional modules on family planning practices is required. This research addresses this gap by investigating how self-instructional modules enhance knowledge, comprehension, and confidence in family planning strategies, with a focus on varied learning styles, information accessibility, and long-term behaviour change.

As more countries implement family planning schemes without opposition, investigating family planning strategies becomes less relevant (Li & Rimon, 2018). It is still vital to research family planning options in order to evaluate and run projects. This will help find the best treatments and approaches to improve contraceptive use while also addressing family planning, fair decision-making, and gender equality issues. Family planning safeguards reproductive rights while benefiting women, families, and communities. Understanding what makes family planning initiatives successful may help us improve and expand access, reduce maternal mortality, empower women, increase child survival, and improve health and well-being. The study of family planning tactics is critical for maximising the benefits of these schemes. Addressing unmet family planning demand requires a multifaceted approach (Pal et al. 2018). Counselling, information, education, and community communication may help to dispel contraceptive misconceptions and fears (Li & Rimon, 2018). We should also advocate for gender-equal cultural norms and expand women's access to education and jobs. The socio-cultural context and barriers to family planning service acceptability and use must also be examined. This ensures that family planning services are accessible, acceptable, and effective, while also taking into consideration the cultural beliefs and contexts of different people. To summarise, reviewing family planning strategies is required to analyse and direct present initiatives towards increased contraceptive use, met family planning requirements, fair decision-making, and gender equality.

1.1. The objectives of the study

1. Assess the knowledge of couples regarding family planning methods before and after the administration of the self-instructional module and evaluate the module's effectiveness.
2. Determine the association between pre-test knowledge of family planning methods and selected demographic variables.

2. Review of Literature

2.1. *literature on family planning*

The literature review provides a comprehensive overview of studies conducted on family planning and contraception. Renjhen et al. (2008) highlighted the disparity between high knowledge and moderate contraceptive use among women in Sikkim, stressing the imperative for improved accessibility, particularly in low-resource settings. Marrinez-Manantooj Labbok Mh underscored the dual interpretation of family planning methods globally and locally, emphasizing the significance of preconception care and counseling.

Speizer et al. (2013) addressed the concept of unmet need for family planning, advocating for comprehensive services to overcome barriers to contraceptive use, especially among women with higher fertility and lower education levels. Silumbwe et al. (2018) stressed the potential of family planning services to enhance quality of life by expanding contraceptive options and mitigating barriers such as lack of knowledge and access. Germano and Jennings (2006) supported women's autonomy in choosing family planning methods based on comprehensive information, acknowledging individual preferences and cultural backgrounds. Prata et al. (2017) delved into the complexities of family planning approval and spousal communication, highlighting the multifaceted socio-cultural factors influencing contraceptive decision-making within couples. Hancock et al. (2023) emphasized the pivotal role of interpersonal communication and counseling in family planning programs, proposing strategies to enhance client-provider interactions and community engagement. Cordero-Franco (2020) addressed the pressing issue of population growth and the imperative for effective contraception, emphasizing the significance of permanent methods like vasectomy. Lastly, Kenny et al. (2022) provided an insightful overview of birth control methods and their historical context, highlighting the diverse cultural and religious attitudes towards contraception. Together, these studies underscore the critical importance of comprehensive family planning initiatives that tackle knowledge gaps, accessibility barriers, and socio-cultural factors to improve contraceptive coverage and enhance reproductive health outcomes

2.2. *Effectiveness regarding family planning method*

The literature presented offers valuable insights into the effectiveness of family planning methods from various perspectives. Freedman (1987) highlights the crucial role of social science research in shaping population policies and family planning programs, emphasizing the importance of adapting interventions to local cultural contexts through carefully monitored pilot projects. Casterline et al. (1997) underscore the need for family planning programs to address both quantitative and qualitative aspects of fertility control, stressing the significance of quality service provision and individual needs consideration. Jain and Rozario (2013) emphasized on collaborative impact of family planning programs and socioeconomic development in fertility decline, emphasizing the accessibility and affordability of contraceptive services.

Furthermore, Chitavi (2006) explores the discursive constructions surrounding family planning technologies, shedding light on the complexities of power dynamics and gender relations inherent in contraceptive use. Richey (1988) provides a comprehensive approach to assessing the quality of family planning services, emphasizing client-centered approaches and service satisfaction. Additionally, studies by Tulandhar and Marahatta, (2008) underscore the importance of user perspectives, cultural sensitivity, and tailored approaches in enhancing the effectiveness of family planning interventions. Overall, the literature underscores the importance of culturally sensitive, accessible, and high-quality family planning services to achieve desired outcomes in fertility control and population stabilization.

2.3. Effectiveness of Self-instructional module

The role of family planning within reproductive healthcare is paramount, enabling individuals to make informed decisions about their sexual and reproductive health (Sharma et al., 2018). Self-instructional modules have been a subject of numerous studies, particularly regarding their impact on knowledge and utilization of family planning methods (Kasa et al., 2018). These investigations consistently demonstrate the effectiveness of self-instructional modules as educational tools for enhancing individuals' understanding of family planning methods. For instance, Smith et al. discovered that participants who engaged with such modules exhibited significantly higher levels of knowledge compared to non-participants (Diamond-Smith et al., 2018). Similarly, Mwaikambo et al. (2011) and Sharma et al. (2018) found that completion of self-instructional modules correlated with increased knowledge and improved utilization of family planning methods among participants.

Beyond knowledge enhancement, self-instructional modules also influence attitudes towards family planning. Participants completing these modules often display more positive attitudes towards family planning and express greater willingness to utilize these methods (Kasa et al., 2018). Moreover, there is evidence indicating a direct impact on the actual utilization of family planning methods. Wilson et al. reported that participants who underwent self-instructional modules were more likely to consistently and correctly use family planning methods compared to those who did not receive such intervention. While the literature overwhelmingly supports the positive impact of self-instructional modules on family planning knowledge and utilization, some studies show inconsistencies in results (Kasa et al., 2018). Therefore, further research is warranted to ascertain the most effective implementation approaches and strategies for these modules within family planning programs (Sharma et al., 2018). Additionally, ongoing research and evaluation are crucial to tailor these modules to specific populations and contexts, ensuring optimal effectiveness (Kasa et al., 2018). In summary, self-instructional modules serve as valuable tools in enhancing knowledge, shaping attitudes, and promoting the utilization of family planning methods within diverse populations.

3. Research Methodology

The current study utilized an evaluative method (Piolt and hungler, 1999) employing a single-group pre-test and post-test research design. The research methodology encompasses a study focusing on eligible couples residing in urban slums of Indore, Madhya Pradesh, with a sample size of 50. Variables under study include independent variables such as age, education, gender, family type, occupation, income, and number of children, while the dependent variable is the knowledge of family planning methods among the couples. Data collection tools include a structured knowledge questionnaire divided into demographic data

and family planning-related questions. The tool underwent rigorous validation and reliability testing, including expert review and pilot study. Data collection involved pre and post-tests administered using the questionnaire, with analysis planned to include frequency distribution, chi-square tests, paired t-tests, and mean comparisons. The study's setting, population, sampling criteria, and data analysis plan are detailed to ensure comprehensive understanding and effective execution of the research.

3.1. Hypotheses

H1: Implementing self-instruction modules addressing family planning significantly increases the level of knowledge in certain parts of Indore city.

H2: Knowledge scores in the sample are significantly associated with certain demographic variables.

4. Analysis and interpretation

4.1. Analysis of respondent's demographics

The table outlines the demographic profile of the 50 study participants, categorized by age, gender, education, occupation, monthly family income, family type, and number of children. Participants' ages were fairly distributed with 22% aged 18-25 years, 32% aged 26-30 years, 24% aged 31-35 years, and 22% aged 35 and above. Gender distribution was equal, with 50% male and 50% female. In terms of education, 12% were illiterate, 42% had primary education, 22% had completed high school, and 24% had higher secondary education. Occupationally, 30% had private jobs, 14% were in government jobs, 20% were self-employed in business, and 36% were laborers. Monthly family income showed that 22% earned 10,000/- per month, 26% earned 20,000/- per month, 30% earned 30,000/- per month, and 22% earned above 30,001/- per month. Regarding family types, 58% lived in nuclear families and 42% in joint families. Finally, the number of children varied with 22% having one child, 32% having two children, 36% having three children, and 10% having more than four children. (see table 1)

Table 1: Demographic profile

Demographic Variable	Frequency (N)	Percentage %
Age		
18-25	11	22.0
26-30	16	32.0
31-35	12	24.0
35 and above	11	22.0
Total	50	100.0
Gender		
Male	25	50.0
Female	25	50.0
Total	50	100.0
Education		
Illiterate	6	12.0
Primary	21	42.0
High School	11	22.0

Higher Secondary	12	24.0
Total	50	100.0
Occupation		
Private Job	15	30.0
Govt. Job	7	14.0
Self -Business	10	20.0
Labor	18	36.0
Total	50	100.0
Monthly Family Income		
10000/- month	11	22.0
20000/- month	13	26.0
30000/- month	15	30.0
30001/- above	11	22.0
Total	50	100.0
Family Types		
Nuclear	29	58.0
Joint	21	42.0
Total	29	58.0
No of Children		
1	11	22.0
2	16	32.0
3	18	36.0
More than 4	5	10.0
Total	50	100.0

4.2. Analysis of effectiveness of SIM on knowledge of family planning methods:

A paired t-test was used to determine the significance of the change in the mean scores on the family planning knowledge test before and after the intervention, and the results are shown in Table 3.

Table 2: Frequency and Percentage Distribution of Pre-test and Post-test Knowledge Score

Pre-test knowledge	Pre-test knowledge score		Post-test Knowledge Score	
	Frequency (N)	Frequency Percentage %	Frequency (N)	Frequency Percentage %
Poor	31	62.7	0	00.0
Average	13	25.5	28	56.0
Good	6	11.8	22	44.0
TOTAL	50	100.0	50	100.0

The table 2 displays the frequency and percentage distribution of pre-test and post-test knowledge scores regarding family planning methods among 50 participants. Before the intervention, 31 participants (62.7%) had poor knowledge scores, 13 participants (25.5%) had average knowledge scores, and 6 participants (11.8%) had good knowledge scores. After the

intervention, none of the participants had poor knowledge scores, 28 participants (56.0%) had average knowledge scores, and 22 participants (44.0%) had good knowledge scores.

Table 3: t-Test results

knowledge score	Mean (\bar{X})	Number	S. D. (s)	Std. Error of Mean	D. F.	t	Significance
Pre-test	8.82	50	3.863	.546	49	-12.691	.000
Post-test	13.46	50	2.984	.422			

The paired t-test results indicate a significant difference between pre-test and post-test knowledge scores regarding family planning methods. The mean pre-test knowledge score was 8.82 (SD = 3.863), while the mean post-test knowledge score increased to 13.46 (SD = 2.984). The standard error of the mean for the pre-test was 0.546, and for the post-test, it was 0.422. The calculated t-value was -12.691 with 49 degrees of freedom, and the significance level was $p = 0.000$. These results suggest that the self-instructional module was highly effective in improving the knowledge of couples regarding family planning methods, confirming a statistically significant increase in knowledge from pre-test to post-test.

4.2. Analysis of Association between demographic variables and pre-test knowledge score

An analysis of the association between various demographic variables and pre-test knowledge scores was conducted using the chi-square test. This statistical test was employed to determine if there were significant relationships between demographic factors, such as age, gender, education, occupation, monthly family income, family type, and number of children, and the pre-test knowledge scores regarding family planning methods. (see table 4)

Table 4: Results of chi-square t-test

Demographic Variable	Pre-test Score			TOTAL	D. F.	χ^2	Significance (p value)
	Poor	Average	Good				
Age					6	19.221	0.004**
18-23	9	0	2	11			
24-28	13	1	2	16			
29-33	4	8	0	12			
33 and above	5	4	2	11			
Total	31	13	6	50			
Gender					2	9.305	0.01**
Male	11	8	6	25			
Female	20	5	0	25			
Total	31	13	6	50			
Education					6	23.771	0.001***
Uneducated	5	1	0	6			
Primary School	13	8	0	21			
High School	9	2	0	11			
Higher Secondary	4	2	6	12			
Total	31	13	6	50			
Occupation					6	14.447	0.025*
Private job	7	5	3	15			

Govt. Job	2	2	3	7			
Self-Business	9	1	0	10			
Labour	13	5	0	18			
Total	31	13	6	50			
Monthly Family Income							
10000/- month	7	4	0	11	6	5.096	0.532
20000/- month	6	4	3	13			
30000/- month	11	2	2	15			
30001/- or above	7	3	1	11			
Total	31	13	6	50			
Family Type							
Nuclear	17	7	5	29	2	1.8	0.407
Joint	14	6	1	21			
Total	31	13	6	50			
No of Children							
1	4	5	2	11	6	13.546	0.036*
2	7	5	4	16			
3	15	3	0	18			
4	5	0	0	5			
Total	31	13	6	50			

Note- Significance level *0.05, **0.01, ***0.001

The chi-square test results reveal significant associations between pre-test knowledge scores regarding family planning methods and several demographic variables. Age is significantly associated with knowledge scores ($\chi^2 = 19.221$, $p = 0.004$), indicating that different age groups have varying levels of pre-test knowledge. Gender also shows a significant association ($\chi^2 = 9.305$, $p = 0.01$), with male participants demonstrating higher knowledge scores compared to female participants. Education level is strongly associated with knowledge scores ($\chi^2 = 23.771$, $p = 0.001$), highlighting that higher education correlates with better knowledge of family planning methods. Occupation shows a significant relationship with knowledge scores ($\chi^2 = 14.447$, $p = 0.025$), suggesting that individuals in different occupational fields have different levels of pre-test knowledge. Additionally, the number of children is significantly associated with knowledge scores ($\chi^2 = 13.546$, $p = 0.036$), indicating that the number of children a couple has influences their knowledge about family planning. However, monthly family income ($\chi^2 = 5.096$, $p = 0.532$) and family type ($\chi^2 = 1.8$, $p = 0.407$) do not show significant associations with pre-test knowledge scores, suggesting these variables do not significantly impact knowledge levels regarding family planning methods in this study.

5. Discussion

The findings from chi-square tests examining various demographic variables' relationship with pre-test scores on family planning knowledge reveal significant associations, indicating that different demographic factors influence baseline knowledge levels. Younger respondents (18-23 years) generally displayed poorer pre-test scores compared to older age groups, suggesting age as a determinant factor requiring tailored educational interventions. Males tended to score higher in the good category than females, indicating potential gender-based differences in initial knowledge levels necessitating gender-sensitive educational strategies. Higher education levels corresponded to better pre-test scores, suggesting educational attainment's influence, warranting tailored interventions. Occupation significantly influenced

knowledge levels, with those in private jobs or laborers exhibiting lower scores, calling for targeted interventions. The number of children correlated with knowledge levels, suggesting the need to consider family size in interventions. Overall, understanding these demographic factors is crucial for developing effective educational interventions to address knowledge gaps across diverse population groups, promoting informed decision-making and improving family planning practices.

Further the findings of a paired t-test indicating a significant difference between pre-test and post-test scores. These findings underscore the effectiveness of the self-instructional module in enhancing respondents' knowledge regarding various areas of disciplining. The results suggest that self-instructional modules are highly effective in increasing knowledge levels among eligible couples regarding family planning methods. The substantial increase in post-test knowledge scores compared to pre-test scores demonstrates the effectiveness of this educational intervention. By providing structured learning materials and self-paced learning opportunities, self-instructional modules can empower individuals to acquire and retain knowledge effectively. Moreover, the significant difference observed between pre-test and post-test scores highlights the immediate impact of the intervention, indicating that participants gained valuable knowledge during the program. Furthermore, the findings imply that self-instructional modules can effectively address the knowledge gaps related to family planning methods among eligible couples. By presenting information in a structured format and allowing participants to engage with the material at their own pace, these modules cater to diverse learning styles and preferences, thereby enhancing knowledge acquisition. Additionally, the standardized content ensures consistency in information delivery, enabling participants to grasp essential concepts related to disciplining.

Overall, the results underscore the importance of incorporating self-instructional modules into family planning educational programs. These modules offer a flexible and accessible means of delivering crucial information, ultimately empowering individuals to make informed decisions regarding family planning. As evidenced by the significant increase in knowledge scores, self-instructional modules hold promise as effective tools for promoting family planning knowledge and utilization, contributing to improved reproductive health outcomes among eligible couples in various communities.

6. Implication of the study

The study's findings hold significant implications for nursing education, practice, administration, and research. In nursing education, it is imperative to integrate family planning principles into the curriculum to prepare future nurses adequately. Given the pivotal role of family planning in fostering familial health and well-being, promoting family planning practices should be encouraged. Aligning nursing education with the national population policy of the Government of India underscores the importance of curricular adjustments to include activities such as the development of educational materials for parents and caregivers in various settings, including home, hospital, and nursery environments.

In nursing practice, nurses assume a crucial role in educating eligible couples about family planning methods, both within the community and hospital settings. Utilizing educational tools such as charts and audiovisual aids enhances the effectiveness of teaching sessions, reinforcing important concepts. Incorporating anticipatory guidance on family discipline alongside family planning education can incentivize healthcare organizations to prioritize comprehensive guidance for eligible couples. The study underscores the efficacy of self-instructional modules (SIMs) as a teaching method, highlighting the role of nurses as

facilitators in educating eligible couples on family planning methods. Empowering parents to exercise control over their behavior and adopt favorable behavioral patterns through nurse-led educational interventions is paramount for enhancing knowledge dissemination among clinic attendees.

In nursing research, the limited literature on family planning methods necessitates a concerted effort to develop information materials tailored to specific needs. Research endeavors should focus on assessing the knowledge, attitudes, and practices of married men concerning family planning methods. By targeting men within the first five years of marriage, research can inform tailored family health education initiatives aimed at enhancing male involvement in family planning decisions. This approach aligns with the historical trajectory of India's family planning program, which initially centered on clinic-based, woman-oriented approaches before evolving to encompass broader social objectives such as birth control.

In nursing administration, proactive measures should be taken to implement outreach programs aimed at raising public awareness about family planning methods to mitigate the adverse effects of population growth. Nursing administrators should allocate resources for developing and disseminating health education materials, ensuring administrative support for health promotion initiatives. Adequate funding should be allocated for the development of health teaching materials to facilitate comprehensive educational programs addressing family planning and related health concerns.

7. Limitations

Several limitations are evident in the study. Firstly, the generalizability of findings is constrained by the sample's narrow scope, which was limited to a single village. Moreover, the absence of a random sampling technique further impedes the extrapolation of results to broader populations. Additionally, the study lacked a follow-up mechanism to assess the retention of knowledge among eligible couples over time, limiting the evaluation of long-term effectiveness. Furthermore, the use of a structured knowledge questionnaire for data collection restricted the depth of information that could be obtained from respondents. Lastly, the absence of a control group that did not receive any specific teaching intervention precludes the ability to test for knowledge improvement among eligible couples without the use of self-instructional modules (SIM). These limitations underscore the need for future research to employ more diverse samples, rigorous sampling techniques, longitudinal follow-up, and comprehensive data collection methods to enhance the validity and generalizability of findings in similar studies.

References

- Casterline, J. B., Perez, A. E., & Biddlecom, A. E. (1997). Factors underlying unmet need for family planning in the Philippines. *Studies in family planning*, 173-191.
- Chitavi, S. O. (2006). *Married Couples' Understandings of Family Planning and their Communication Processes* (Doctoral dissertation).
- Cordero-Franco, C. (2020). Reviving permanent contraception: New medical procedures or new service delivery modalities?. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 66, 15-27.
- Diamond-Smith, N., Warnock, R., & Sudhinaraset, M. (2018). Interventions to improve the person-centered quality of family planning services: a narrative review. *Reproductive health*, 15, 1-17.

- Freedman, R. (1987). The contribution of social science research to population policy and family planning program effectiveness. *Studies in family planning*, 18(2), 57-82.
- Germano, E., & Jennings, V. (2006). New approaches to fertility awareness-based methods: incorporating the Standard Days and TwoDay Methods into practice. *Journal of Midwifery & Women's Health*, 51(6), 471-477.
- Hancock, H., Carlson, O., Hempstone, H., Arnold, B., Hoffmann, K., Gul, X., & Spielman, K. (2023). Six recommendations for provider behavior change in family planning. *Global Health: Science and Practice*, 11(Supplement 1).
- Jain, D., & Rozario, N. M. (2013). Voices from the field: women's access to contraceptive services and information in Haryana.
- Kasa, S A., Tarekegn, M., & Embiale, N. (2018). Knowledge, attitude and practice towards family planning among reproductive age women in a resource limited settings of Northwest Ethiopia. *BMC research notes*, 11, 1-6.
- Kenny, L., Bhatia, A., Lokot, M., Hassan, R., Hussein Aden, A., Muriuki, A., ... & Hossain, M. (2022). Improving provision of family planning among pastoralists in Kenya: Perspectives from health care providers, community and religious leaders. *Global Public Health*, 17(8), 1594-1610.
- Khan, M. N., & Islam, M. M. (2022). Exploring rise of pregnancy in Bangladesh resulting from contraceptive failure. *Scientific reports*, 12(1), 2353.
- Kwawukume, S. A. K., Laar, A. S., & Abdulai, T. (2022). Assessment of men involvement in family planning services use and associated factors in rural Ghana. *Archives of Public Health*, 80(1), 63.
- Li, Q., & Rimon, J. G. (2018). A demographic dividend of the FP2020 Initiative and the SDG reproductive health target: Case studies of India and Nigeria. *Gates Open Research*, 2.
- Mandara, M. (2012). Family planning in Nigeria and prospects for the future. *International journal of Gynecology & obstetrics*, 117(1), 1-4.
- Muttreja, P., & Singh, S. (2018). Family planning in India: The way forward. *Indian Journal of Medical Research*, 148(Suppl 1), S1-S9.
- Mwaikambo, L., Speizer, I. S., Schurmann, A., Morgan, G., & Fikree, F. (2011). What works in family planning interventions: a systematic review. *Studies in family planning*, 42(2), 67-82.
- Pal, A., Yadav, J., & Sunita, K. J. S. (2018). Factors associated with unmet need of family planning in Bihar, India: a spatial and multilevel analysis. *methods*, 1, 2.
- Prata, N., Fraser, A., Huchko, M. J., Gipson, J. D., Withers, M., Lewis, S., ... & Upadhyay, U. D. (2017). Women's empowerment and family planning: a review of the literature. *Journal of biosocial science*, 49(6), 713-743.
- Richey, L. (1998). Obstacles to quality of care in family planning and reproductive health services in Tanzania. *Chapel Hill, NC: Carolina Population Center (CPC), MEASURE*.
- Sharma, A. E., Frederiksen, B. N., Malcolm, N. M., Rollison, J. M., & Carter, M. W. (2018). Community education and engagement in family planning: updated systematic review. *American journal of preventive medicine*, 55(5), 747-758.

Sharma, H., Singh, S. K., & Srivastava, S. (2021). Spatial heterogeneity and major correlates of Unmet Need of family planning among young married women aged 15-24 in India: An Exploratory Study. *Sage Open*, 11(2), 21582440211024615.

Silumbwe, A., Nkole, T., Munakampe, M. N., Milford, C., Cordero, J. P., Kriel, Y., ... & Steyn, P. S. (2018). Community and health systems barriers and enablers to family planning and contraceptive services provision and use in Kabwe District, Zambia. *BMC health services research*, 18, 1-11.

Speizer, I. S., Calhoun, L. M., Hoke, T., & Sengupta, R. (2013). Measurement of unmet need for family planning: longitudinal analysis of the impact of fertility desires on subsequent childbearing behaviors among urban women from Uttar Pradesh, India. *Contraception*, 88(4), 553-560.

Starbird, E., Norton, M., & Marcus, R. (2016). Investing in family planning: key to achieving the sustainable development goals. *Global health: science and practice*, 4(2), 191-210.

Tuladhar, H. and Marahatta, R. (2008) Awareness and Practice of Family Planning Methods in Women Attending Gynae OPD at Nepal Medical College Teaching Hospital. *Nepal Medical College Journal*, 10, 184-191.