

Scaling Up Contraceptive Use in LMICs: A Systematic Review of Social and Behavioral Change Interventions

Syeda Tabeena Ali ¹, Marwa Rehman ¹, Mahnoor Azhar ¹, Mahpara Khan ¹, Simra Abuzar ¹, Sameera Ali Rizvi ¹

Abstract

Background: Despite global family planning initiatives, many women in low- and middle-income countries (LMICs) continue to encounter barriers to contraceptive access, contributing to persistently high unmet need. Social and behavior change (SBC) interventions, such as mass media campaigns, peer education, community engagement, and male involvement; have been increasingly employed to enhance knowledge, shift attitudes, and support sustained contraceptive use.

Methodology: This systematic review followed PRISMA 2020 guidelines. PubMed, Google Scholar, Scopus, Web of Science, and ScienceDirect were searched for studies published between 2014 and 2024. Eligible studies included randomized controlled trials (RCTs), quasi-experimental, and cohort designs with measurable contraceptive outcomes and robust statistical analyses.

Results: Twenty studies met the inclusion criteria, encompassing mHealth and telehealth technologies, community-based programs, and counseling services. SBC interventions were associated with significant improvements in contraceptive uptake and acceptability. Effective elements included tailored educational materials, digital platforms, male partner engagement, and peer support networks. Several interventions also enhanced psychosocial outcomes and improved access to family planning services.

Conclusion: SBC interventions significantly increase contraceptive use in LMICs, with greater impact when incorporating community participation, culturally tailored messaging, and supportive financial measures. Future research should address gaps in the long-term effectiveness of digital approaches and assess scalability across diverse settings. Policymakers should prioritize evidence-based SBC strategies to ensure equitable access to family planning services.

Keywords: Contraceptive use; social and behavior change interventions; family planning; male involvement; LMICs; mHealth; telehealth

How to cite this article: Ali ST, Rehman M, Azhar M, Khan M, Abuzar S, Rizvi SA. Scaling Up Contraceptive Use in LMICs: A Systematic Review of Social and Behavioral Change Interventions. Pak J Public Health 2025 Aug; 30;15(Special.FP):00-00.

DOI: <https://doi.org/10.32413/pjph.v15iSpecial.FP.1578>

Copyright © 2025 The Author(s). Published by Health Services Academy. This is an Open Access article under the CC BY-NC 4.0 license.

Introduction

Robust family planning services are important for meeting sustainable development goals, achieving gender equality and bettering reproductive health results in LMICs (1). Although global programs aim to give women in low- and middle-income countries greater access to contraception, many still experience considerable obstacles and as a result have unmet family planning needs (2). Special efforts called Social and Behavior Change (SBC) have proven effective in helping communities learn, change attitudes and practice helpful behaviors (3).

SBC applies a variety of approaches, for example, communications via the media, community outreach, educational work with groups and men are also involved. They are designed to overcome obstacles in society, information and systems that keep people from using contraceptives. Media efforts have managed to clear up misconceptions about family planning and community work has empowered local people to talk about using new forms of contraception (4,5).

Findings suggest that when interventions are adapted to local areas, SBC programs help close contraceptive gaps. A serious obstacle in these countries is that many people believe in myths



¹ Department of Public Health, SZABIST University Karachi, Pakistan

Correspondence:

Syeda Tabeena Ali
syeda.tabeena@szabist.edu.pk

Submitted: 05-12-2024

Revised: 06-03-2025

Accepted: 26-06-2025

Published: 30-08-2025

and reject family planning. A lack of understanding of how something can affect health or cause side effects is what discourages some from using it (6,7). Broadcasts through radio and television personalized for different people have helped increase acceptance of contraceptive use among many people (8,9).

Problems related to gender roles and men's participation keep being a big challenge. In a lot of male-dominated societies, men control the decisions women make about reproduction. SBC projects in Nigeria and India have concentrated on involving men through peer sessions and spousal discussions which has raised contraceptive use and improved the backing of their partners (10–12).

Interventions in sexual and reproductive health (SRH) reaching youth and people in urban centers have increased thanks to tools like mobile health, social media and SMS-based services. Such technologies allow anyone access to family planning information and guide them to close-by services (13–16).

Yet, the fact that SBC projects rely mostly on donations worries many about their continued existence. Social behavior changes programs need to be adapted to the needs and culture of the group they are working with (17–19).

Our goal in this systematic review is to bring together information on the uses of SBC interventions to improve contraceptive usage in LMICs. The study will investigate how to get past family planning problems and evaluate options that make contraception services more available. Empirical research and program evaluations provide the review with recommendations that are useful for policymakers, practitioners and researchers involved in improving family planning results in resource-limited places (20).

Methodology

This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A PRISMA flow diagram (Fig. 1) has been included to illustrate the process of study identification, screening, eligibility, and inclusion. The review was not registered on PROSPERO.

For the literature search, five major databases were systematically searched: Google Scholar, PubMed, Scopus, Web of Science, and ScienceDirect. To ensure a robust evidence base, we focused on studies published between 2014 and 2024. The search strategy included Boolean operators (AND, OR) and indexed keywords such as: 'Social and Behavior Change Interventions', 'Contraceptive Use', 'Family Planning', 'Low- and Middle-Income Countries', and 'Reproductive Health'. These

terms were adapted for each database to maximize relevant results.

The eligibility criteria for inclusion were defined using the PICO framework (Population, Intervention, Comparison, Outcome) to ensure clarity and consistency. We included peer-reviewed studies published in English, targeting persons of reproductive age (adolescents and adults) in low- and middle-income countries (LMICs). The interventions of interest were social and behavior change (SBC) strategies, including counseling, media campaigns, peer education, community engagement programs, and digital health initiatives aimed at improving contraceptive use. Accepted study designs included randomized controlled trials (RCTs), quasi-experimental studies, and cohort studies with rigorous statistical analyses. Studies were excluded if they lacked clear contraceptive outcomes or fell outside the specified timeframe.

The data extraction process was conducted independently by two reviewers. Extracted data included author details, publication year, study location, population characteristics, intervention type, assessment tools, outcomes measured, and statistical methods. Discrepancies between reviewers were resolved through discussion and mutual agreement.

Risk of Bias Assessment

To evaluate internal validity and methodological quality, we performed a structured risk of bias assessment. For RCTs, the Revised Cochrane Risk of Bias Tool (RoB 2) was used, while for non-randomized and quasi-experimental studies, the ROBINS-I tool (Risk of Bias in Non-Randomized Studies-of Interventions) was applied. These tools evaluate several domains of bias, including confounding, selection bias, deviations from intended interventions, missing data, measurement bias, and selective reporting.

Each study was independently assessed by two reviewers, and any disagreements were resolved through consensus. Based on this evaluation, four studies were rated as low risk of bias, eight had some concerns, five were rated as serious, and three studies were deemed high or critical risk. Studies with low risk of bias typically featured robust RCT designs, large sample sizes, and minimal attrition, while those rated as serious or critical commonly lacked control groups, had short follow-up periods, or relied heavily on self-reported outcomes.

A detailed summary of the risk of bias assessments is provided in Table I. These assessments were considered in interpreting the results and drawing conclusions.

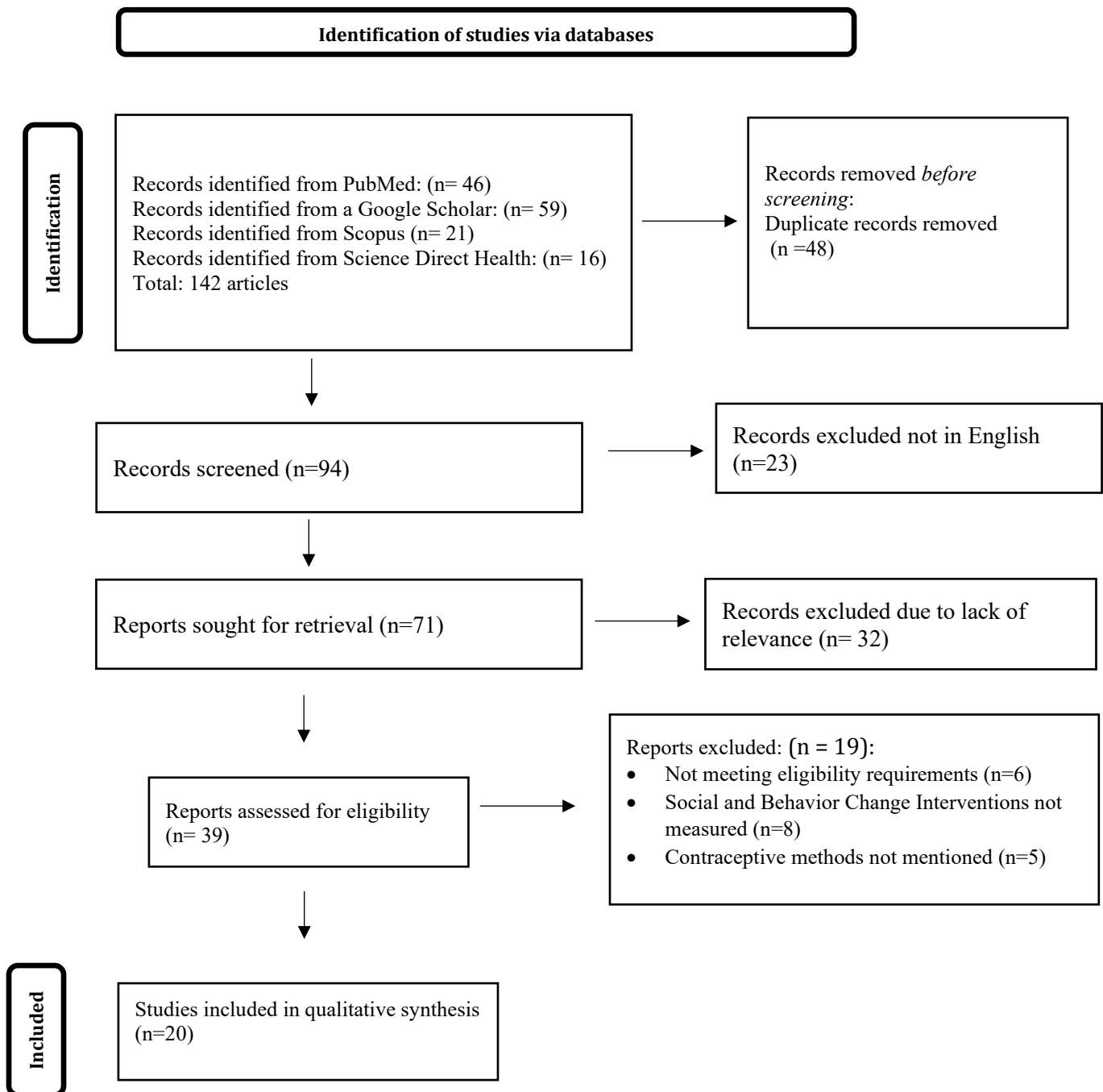
PRISMA Diagram:

Figure 1: PRISMA flowchart of the searched, identified, and included studies

Table 1: Risk of Bias Assessment

Study (Author, Year)	Design	Tool Used	Overall Risk of Bias Judgment	Rationale
Yuan He et al. (2017)	RCT	RoB 2	Some Concerns	Self-reported data, assumptions about sexual activity, risk of misclassification.
Elia Díez et al. (2017)	RCT	RoB 2	Low	Strong design and statistical methods; minor self-report bias.
Ona McCarthy et al. (2018)	RCT	RoB 2	High	Intervention content overlap, app-related limitations, limited follow-up.
Ona McCarthy et al. (2017)	RCT	RoB 2	High	Self-reporting in a stigmatized setting; outcome measurement bias.
Ona McCarthy et al. (2020)	RCT	RoB 2	High	Sample target not met; low power; self-reported data.
Brousseau et al. (2020)	RCT	RoB 2	Some Concerns	Strong design but underpowered sample; minor attrition.
Farris et al. (2015)	Quasi-Experimental	ROBINS-I	Serious	No randomization; possible confounding not adjusted.
Whitaker et al. (2015)	Pilot Counseling	ROBINS-I	Serious	Small sample (n=20); no control group; high self-report bias.
Sun et al. (2017)	RCT	RoB 2	Some Concerns	Short duration (6 weeks); moderate online engagement bias.
Martínez-García et al. (2023)	RCT	RoB 2	Some Concerns	Strong engagement, but low sexual activity limits contraceptive outcome assessment.
Mogro-Wilson et al. (2020)	RCT	RoB 2	Some Concerns	Focus only on condoms; well-structured intervention.
Hewett et al. (2017)	Cluster RCT	RoB 2	Low	Large sample; multisectoral intervention; minor selection bias.
Dehlendorf et al. (2020)	RCT	RoB 2	Some Concerns	Online self-reported data; minimal follow-up; bias acknowledged.
Sandøy et al. (2024)	Cluster RCT	RoB 2	Low	High retention rate (95.3%); good design.
Najmi et al. (2018)	Pre-post Observational	ROBINS-I	Critical	No control group; risk of recall, selection, and performance bias.
Miller et al. (2016)	RCT	RoB 2	Some Concerns	Strong sample and design, but possible bias in outcome reporting.
Flanagan et al. (2021)	Cluster RCT	RoB 2	Low	Well-executed design; adjusted for adolescent-specific variables.
McConnell et al. (2018)	RCT	RoB 2	High	Attrition and self-reporting limit reliability; small sample size.
Memon et al. (2022)	Quasi-experimental	ROBINS-I	Serious	Non-randomized; possible selection and performance bias.
Kennedy et al. (2019)	RCT with follow-up	RoB 2	Low	Rigorous multi-country RCTs with qualitative synthesis; strong methods and consistent reporting.

Results

In this systematic review, 20 studies were analyzed. Of the 20 included studies, 12 were randomized controlled trials (RCTs), and the remaining were quasi-experimental in design. In China, a study was conducted among nulliparous women aged 18 to 40 years by following a clustered randomized control trial. The study found that the overall operative contraceptive use remained low, at less than 5%, while condoms were the most commonly used contraceptive method. The adjusted odds ratios indicated a significant association between gynecological exams and contraceptive uptake, with an adjusted odds ratio of 2.89

(21).

In Spain, a randomized controlled trial conducted involving men and women aged 14 to 49 years found significant increases in the consistent use of effective contraceptive methods among the intervention group. The study reported an adjusted odds ratio of 1.138 (95% CI: 1.010–1.284) for optimal contraceptive use. Additionally, the use of less effective methods decreased by 47.2%, highlighting the effectiveness of counselling interventions in improving contraceptive uptake (22).

In Kenya, McConnell et al. (2018) demonstrated that an intervention combining SMS reminders with free health

vouchers increased modern contraceptive use by 25% among postpartum women in a public antenatal clinic setting (OR = 1.91, 95% CI: 1.12–3.26, $p = 0.02$). A newly added RCT by Kennedy et al. (2019) found that integrating reproductive health vouchers and youth-friendly services significantly increased LARC uptake among adolescents in Kenya (adjusted OR = 2.91, 95% CI: 1.63–5.17, $p < 0.001$). Interventions like Mobile-based showed fluctuating levels of effectiveness. In Tajikistan, no significant differences in the acceptability of effective contraceptives between the intervention and control groups; however, the acceptability increased to 65% after the intervention ($p < 0.001$) has been found in a study (24). Similarly, in Bolivia, an intervention stated a 72% acceptability rate for effective contraceptives among young women (23).

A community-based integrated approach targeting married women of reproductive age led to a 10.7% increase in contraceptive prevalence from 42.3% at baseline to 53% mid-intervention. The involvement of community health workers (CHWs) and spousal communication played critical roles in this success has been reported in Pakistan (40).

In Uganda, Flanagan et al. (2021) reported a 62% increase in adolescent contraceptive clients in youth-friendly clinics implementing referral card strategies and behaviorally informed service improvements. In the United States, an RCT by Miller et al. (2016) targeting reproductive coercion found a 90% reduction in unwanted pregnancies, suggesting trauma-informed SBC counseling has a strong impact.

The Role of youth-friendly Services and Community Engagement has been underlined by peer-supported clinics established a 62% growth in adolescent clients implementing contraceptive methods in Uganda (27). In Kenya, postpartum

contraceptive use by 25% points associated with the control group, addressing financial and informational blockades has been increased by combining free vouchers with SMS reminders in Kenya (39).

Digital interventions yielded mixed results. In Spain, Díez et al. (2017) reported increased consistent contraceptive use with an adjusted OR of 1.14 (95% CI: 1.01–1.28). However, Martínez-García et al. (2023) found that while their Crush app improved SRH knowledge and attitudes, low levels of sexual activity limited impact on contraceptive uptake.

A summary of the characteristics of these studies is presented in Table II, which outlines country, study design, population, sample size, contraceptives included, and outcome assessment tools.

Table III provides key findings, strengths, and limitations of each study. Methodological weaknesses commonly noted include short follow-up periods, heavy reliance on self-reported outcomes, and absence of control groups in non-randomized designs.

Table IV summarizes the behavioral change mechanisms applied across studies—including informational materials, partner involvement, social support, and digital engagement—with effective strategies often combining multiple components like counseling, vouchers, and male engagement to improve outcomes.

A forest plot (Figure 2) was constructed to visually synthesize odds ratios from six key studies. These studies reported measurable improvements in contraceptive uptake following SBC interventions, including community-based programs, digital tools, and counseling strategies. Most interventions demonstrated a positive effect, with odds ratios above 1, indicating increased contraceptive use compared to controls.

Table 2: Summary of Scaling Up Contraceptive Use through Social and Behavior Change Interventions: Lessons from Global Evidence with a Focus on Low- and Middle-Income Countries

Authors	Country	Design	Population	Sample Size	Contraceptives Included	Assessment Tools/Outcome Measures
Yuan He et al. (2017)	China	RCT	Nulliparous women 18–40 yrs	901	Birth control methods	Chi-square/Fisher's test; logistic regressions
Elia Díez et al. (2017)	Spain	RCT	Men & women aged 14–49	746	Modern contraceptives	Robust Poisson regression
Ona McCarthy et al. (2018)	Bolivia	RCT	Women aged 16–24	640	Any method	Logistic regression
Ona McCarthy et al. (2017)	Tajikistan	RCT	Youth aged 16–24	573	Any method	Logistic regression
Ona McCarthy et al. (2020)	Palestine	RCT	Women aged 18–24	570	Any method	Integrated Behavioral Model
Brousseau et al. (2020)	USA	RCT	Women in prison	232	Condoms and other methods	Motivational interviewing, interviews
Kamulegeya et al. (2022)	Uganda	Cross-sectional	Men aged ≥ 18	551	Modern methods	Surveys and qualitative interviews
Farris et al. (2015)	USA	Quasi-experimental	Women aged 18–30	87	OCPs, condoms	Sales data; binomial regression
Whitaker et al. (2015)	USA	Pilot study	Women aged 15–24	20	LARC and other methods	Baseline and follow-up surveys

Authors	Country	Design	Population	Sample Size	Contraceptives Included	Assessment Tools/Outcome Measures
Sun et al. (2017)	China	RCT	College students	196	Condoms	Online surveys; outcome evaluation
Martínez-García et al. (2021)	USA	RCT	Adolescents aged 14–18	1210	Multiple methods	Online surveys
Mogro-Wilson et al. (2019)	USA	RCT	Males aged 15–24	328	Condoms	Stages of Change algorithm
Hewett et al. (2017)	Zambia	Cluster RCT	Girls aged 10–19	11,000	Modern methods	Longitudinal mixed methods
Dehlendorf et al. (2020)	USA	RCT	Women aged 14–45	488	IUD	T-test, chi-square
Sandøy et al. (2024)	Zambia	Cluster RCT	Grade 7 girls	4,922	Not specified	Surveys and risk analysis
Najmi et al. (2018)	Pakistan	Pre-post observational	Women of reproductive age	5,140	Modern methods	Pre-post data evaluation
Miller et al. (2016)	USA	RCT	Women aged 16–29	4,009	Mixed methods	Surveys
Flanagan et al. (2021)	Uganda	RCT	Girls aged 15–19	116 clinics	Any method	Regression analysis
McConnell et al. (2018)	Kenya	RCT	Pregnant women	686	Modern methods	Linear model with robust SEs
Kennedy et al. (2019)	Kenya	RCT	Women aged 18–30	860	Implants, injectables, pills	Mixed-methods (survey and FGD)

Table 3: Summary of Findings and Limitations

Authors	Key Findings	Limitations	Strengths
Yuan He et al.	Condom use was most common; low overall uptake	Self-report bias, assumptions on sexual activity	RCT design, rural and urban participants
Elia Díez et al.	Use of less effective methods significantly declined	Possible reporting bias	Controlled RCT, diverse population
Ona McCarthy (2018)	Acceptability increased from 2% to 65%	App-only content; no follow-up interviews	Randomization integrity
Ona McCarthy (2017)	Increased usage in both groups	Self-reporting on sensitive issues	Digital intervention tailored for youth
Ona McCarthy (2020)	Acceptability was higher in intervention group	Sample size lower than intended	Integration of behavioral model
Brousseau et al.	CAMI approach increased contraceptive initiation	Small sample size	Motivational counseling evaluated
Kamulegeya et al.	Reported increase in couple communication	Unequal access to mobile phones	95% message delivery rate
Farris et al.	No significant change in OCP sales	No control group	Validated sales-based metrics
Whitaker et al.	High intention to use LARC reported	Very small sample	Demonstrated feasibility
Sun et al.	Engagement improved significantly	Short study duration	Peer-led Facebook model
Martínez-García et al.	Increased SRH knowledge and attitudes	Low behavioral outcome reporting	High app engagement
Mogro-Wilson	Condom readiness increased post-program	Single-method focus	Tailored for adolescent males
Hewett et al.	Financial literacy and SRH knowledge improved	Self-selection bias	Large-scale implementation
Dehlendorf	Knowledge on IUD increased significantly	Very short follow-up (2 weeks)	Validated tool use
Sandøy	Fewer early pregnancies and more health exams	Limited generalizability	High retention rate
Najmi et al.	FP use increased by over 10%	No control group	CHW-led customized intervention
Miller et al.	Reproductive coercion reduced significantly	Potential self-report bias	Longitudinal and well-powered
Flanagan	More youth accessed contraception services	Self-reported outcomes	Youth-friendly services and vouchers
McConnell	Uptake improved with combined intervention	Small sample size	Cost-effective and scalable
Kennedy et al.	Long-acting methods uptake increased	Cost data not available	RCT with qualitative follow-up

Table 4: Summary of behavior change techniques

Authors	Information Provided	Performance Feedback	Problem-Solving Support	Social Support	Educational Materials	Media Used	Male Partner Involvement
Yuan He et al.	Community-based messaging	Increased awareness	Not reported	Peer discussions	Brochures and posters	Print media	Not reported
Elia Díez et al.	FP counseling sessions	Increased correct use	Counseling helped overcome barriers	Nurses and psychologists	Flyers	None	Included
Ona McCarthy (2018)	Mobile app education	Increased contraceptive confidence	Not explicitly stated	Not reported	None	Mobile app	Included
Ona McCarthy (2017)	Counseling and SMS	Increased acceptability	Changed beliefs	Not reported	None	Digital	Not included
Ona McCarthy (2020)	Personalized mobile outreach	Improved understanding	Not described	Not reported	None	Mobile messages	Not reported
Brousseau et al.	Interactive counseling + video	Increased initiation	Addressed myths and stigma	Counselor interaction	Videos	None	Not included
Kamulegeya et al.	SMS hotline and reminders	More informed decisions	Barriers discussed via SMS	Supportive messaging	None	SMS	Included
Farris et al.	Posters and brochures	No behavior change	Not addressed	Pharmacy staff	Educational posters	None	Not reported
Whitaker et al.	Counseling and video	LARC intention increased	Not detailed	None	Visual tools	None	Not reported
Sun et al.	Peer discussion forum	Improved SRH engagement	FAQs and peer support	Online peer group	Infographics	Facebook	Not reported
Martínez-García	Mobile app and SRH info	Increased confidence	Limited access challenges addressed	None	Interactive content	Social media	Not reported
Mogro-Wilson	Male-focused training	Condom readiness improved	Myths addressed in sessions	Peer educators	Posters and handouts	Radio and TV	Included
Hewett et al.	CSE and mentoring	Literacy and SRH improved	Not detailed	Mentors and teachers	Life skills guides	None	Not reported
Dehlendorf	Online decision aid	IUD awareness improved	Not stated	Online support forum	Decision tool	Website	Not reported
Sandøy	CSE with health staff	More health exams taken	Cultural barriers discussed	Community health teams	CSE booklets	None	Not reported
Najmi et al.	Door-to-door sessions	Uptake improved	Tailored messaging	CHW-led discussions	Flipcharts	None	Included
Miller et al.	Clinic education	Reduced coercion	Safety planning discussed	Trained health staff	Visual materials	None	Included
Flanagan	Counseling + vouchers	Service uptake increased	Addressed access barriers	Peer navigators	Posters	Clinic media	Included
McConnell	Text + education	Modern method uptake improved	Barriers like cost discussed	Health counselor support	Counseling aids	SMS	Included
Kennedy et al.	Voucher + FP app	Increased LARC use	Financial & behavioral issues addressed	Health workers	Job aids and digital content	SMS and app	Not mentioned

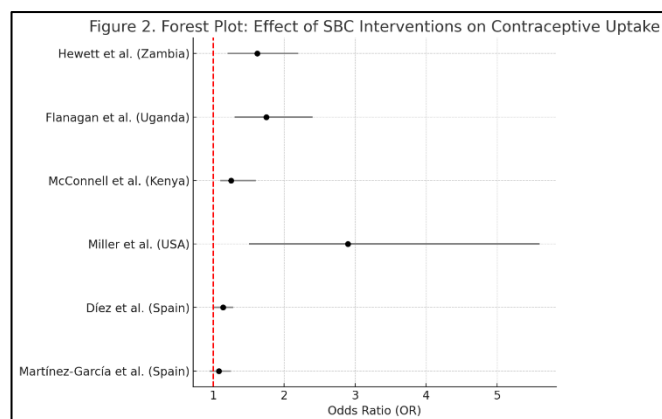


Figure 1: Forest Plot: Effect Sizes of SBC Interventions on Contraceptive Uptake

This forest plot summarizes odds ratios (ORs) and 95% confidence intervals from 6 studies that reported comparable quantitative outcomes on contraceptive uptake. A positive effect ($OR > 1$) indicates increased contraceptive use due to SBC interventions.

Discussion

In improving contraceptive uptake, community-based initiatives, spousal communication, and youth-friendly services emerged as effective strategies. Involving spouses and leveraging community health workers (CHWs) significantly boosted contraceptive prevalence rates in Pakistan and Nigeria (26). Correspondingly, Zambia and Kenya addressed financial barriers, leading to increased contraceptive adoption among adolescents and postpartum women (25,22).

In Bolivia and Tajikistan, digital interventions such as mobile apps and messaging platforms have shown limited success unless they are paired with personalized counseling and offline community support. This highlights the importance of integrating technology with human-centered approaches for greater effectiveness. Global trends indicate that technology-based solutions are most effective when accompanied by counseling and community outreach (23,24). Furthermore, passive interventions, such as the use of informational brochures in China, had minimal impact, emphasizing the need for more interactive and participatory designs (21).

A significant limitation of many included studies was the reliance on self-reported outcomes, which are subject to recall and social desirability biases. While some studies acknowledged these limitations, few adjusted for them statistically or triangulated with objective data. Additionally, the short follow-up periods (typically under 6 months) limited insights into the long-term sustainability of contraceptive use. Heterogeneity in study designs and intervention types, ranging from peer education to SMS-based reminders, complicated synthesis and comparison. This variability further underscores the need for standardized reporting metrics and longer-term outcome tracking.

Theoretical integration was also lacking in most

studies. Only a few explicitly grounded their interventions in behavioral science models such as the Health Belief Model or the Theory of Planned Behavior. This gap limits understanding of the mechanisms driving behavior change. Future SBC interventions should be developed and evaluated using structured theoretical frameworks to clarify causal pathways. Another major gap is the absence of economic evaluations. Cost-effectiveness, scalability, and budgetary implications of interventions were rarely discussed, despite their importance for policy and programming in LMICs. This omission limits the ability of policymakers to prioritize resource allocation. Including such analyses in future studies would be critical for real-world implementation.

Importantly, participant voice was minimally represented. Few studies included qualitative data or thematic synthesis capturing beneficiaries' perspectives. This undermines the understanding of local context, acceptability, and user-driven improvements. Future reviews should consider meta-ethnographic techniques or mixed-method synthesis to better incorporate end-user insights.

Despite these challenges, this review has several strengths, including a comprehensive 10-year inclusion period (2014–2024), adherence to PRISMA guidelines, use of structured quality appraisal tools (RoB 2, ROBINS-I), and cross-contextual comparisons. These collectively provide a rich foundation for policy development and future research.

Conclusion

This review demonstrates the transformative potential of social and behavioral change (SBC) interventions in increasing contraceptive use in low- and middle-income countries (LMICs). The most effective strategies combine community engagement, financial incentives, male involvement, and culturally tailored interventions. It is imperative to address persistent challenges such as limited long-term data, methodological heterogeneity, and underdeveloped digital interventions. Substantial investment is needed in theory-informed, cost-effective, and scalable SBC strategies that are sensitive to cultural and infrastructural realities. Policymakers must take decisive action to integrate these evidence-based approaches into health systems, ensuring inclusive, sustainable, and equitable family planning outcomes.

Ethical Approval:

This study was exempt from IRB review as it involved analysis of publicly available data.

Data Availability: Data supporting the findings are available upon reasonable request.

Financial support and sponsorship: None

Conflict of interest: The authors declare that they have no conflicts of interest related to this project.

Authors' Contribution:**STA:** developed and designed the research protocol.**MR:** Done literature review**MA:** Database search**MK:** reviewing & editing**SA:** manuscript formation**SAR:** The final review of the draft and proofreading it.**References**

- World Health Organization. International Classification of Diseases, 11th Revision (ICD-11). Geneva: World Health Organization; 2018. <https://iris.who.int/bitstream/handle/10665/260156/9780999203705-eng.pdf>
- Coulson, J., Sharma, V., & Wen, H. (2023). Understanding the global dynamics of continuing unmet need for family planning and unintended pregnancy. *China Population and Development Studies*. <https://doi.org/10.1007/s42379-023-00130-7>
- Ahmed S, Li Q, Liu L, Tsui AO. Maternal deaths averted by contraceptive use: an analysis of 172 countries. *Lancet*. 2012;380(9837):111-125. doi:10.1016/S0140-6736(12)60478-4
- Bongaarts J, Cleland JC, Townsend J, Bertrand JT, Das Gupta M. *Family Planning Programs for the 21st Century: Rationale and Design*. New York: Population Council; 2012.
- Guttman Institute. Adding It Up: Costs and Benefits of Meeting Contraceptive and Maternal and Newborn Health Needs of Women in Pakistan. New York: Guttman Institute; 2012. <https://www.healthynewbornnetwork.org/hnn-content/uploads/Adding-it-up-costs-and-benefits-of-meeting-contraceptive-and-maternal-and-newborn-health-needs-of-women-in-pakistan.pdf>
- Sedgh G, Ashford LS, Hussain R. Unmet Need for Contraception in Developing Countries: Examining Women's Reasons for Not Using a Method. New York: Guttman Institute; 2016.
- Duminy J, Cleland J, Harpham T, Montgomery MR, Parnell S, Speizer IS. Urban Family Planning in Low- and Middle-Income Countries: A Critical Scoping Review. *Front Glob Womens Health*. 2021;2:749636. Published 2021 Oct 25. doi:10.3389/fgwh.2021.749636
- Nurjaeni, N., Sawangdee, Y., Pattaravanich, U. et al. The role of structural and process quality of family planning Care in Modern Contraceptive use in Indonesia: a multilevel analysis. *BMC Public Health* 21, 1790 (2021). <https://doi.org/10.1186/s12889-021-11858-7>
- Ghosh R, Mozumdar A, Chattopadhyay A, Acharya R. Mass media exposure and use of reversible modern contraceptives among married women in India: An analysis of the NFHS 2015-16 data. *PLoS One*. 2021;16(7):e0254400. Published 2021 Jul 13. doi:10.1371/journal.pone.0254400
- Ahmed, J.M., Abrejo, F.G., Gul, X. et al. Men's involvement in family planning programs: an exploratory study from Karachi, Pakistan. *Reprod Health* 21, 140 (2024). <https://doi.org/10.1186/s12978-024-01875-1>
- Ezeanolue, E.E., Iwelunmor, J., Asaolu, I. et al. Impact of male partner's awareness and support for contraceptives on female intent to use contraceptives in southeast Nigeria. *BMC Public Health* 15, 879 (2015). <https://doi.org/10.1186/s12889-015-2216-1>
- Dixit, A., Averbach, S., Yore, J. et al. A gender synchronized family planning intervention for married couples in rural India: study protocol for the CHARM2 cluster randomized controlled trial evaluation. *Reprod Health* 16, 88 (2019). <https://doi.org/10.1186/s12978-019-0744-3>
- Skinner J, Hempstone H, Raney L, et al. Elevating Social and Behavior Change as an Essential Component of Family Planning Programs. *Stud Fam Plann*. 2021;52(3):383-393. doi:10.1111/sifp.12169
- Leight J, Hensly C, Chissano M, et al. The effects of text reminders on the use of family planning services: evidence from a randomised controlled trial in urban Mozambique. *BMJ Glob Health*. 2022;7(4):e007862. doi:10.1136/bmjgh-2021-007862
- Lorenzetti L, Plourde KF, Rastagar SH, et al. Analyzing program data and promotional approaches to inform best practices from a mobile phone-based reproductive health message program in Afghanistan. *Digit Health*. 2022;8:20552076221089801. Published 2022 Apr 12. doi:10.1177/20552076221089801
- Khatun F, Heywood AE, Ray PK, Hanifi SM, Bhuiya A, Liaw ST. Determinants of readiness to adopt mHealth in a rural community of Bangladesh. *Int J Med Inform*. 2015;84(10):847-856. doi:10.1016/j.ijmedinf.2015.06.008
- Donessouné, F.M.G., Sossa, G.O. & Kouanda, S. Sustainability of community health programme using community-based organizations: a challenge for stakeholders. *BMC Health Serv Res* 23, 434 (2023). <https://doi.org/10.1186/s12913-023-09320->
- Gillum C, Tureski K, Msofe J. Strengthening Social and Behavior Change Programming Through Application of an Adaptive Management Framework: A Case Study in Tanzania. *Glob Health Sci Pract*. 2023;11(Suppl 2):e2200215. Published 2023 Dec 18. doi:10.9745/GHSP-D-22-00215
- Askew I, Brady M. Reviewing the evidence and identifying gaps in family planning research: The unfinished agenda to meet FP2020 goals. New York: Population Council; 2013. Report. Available from: <https://doi.org/10.31899/rh3.1019>
- Marks, S., Arogundade, E., Carew, M.T. et al. Improving access to family planning for women with disabilities in Kaduna city, Nigeria: study protocol for a pragmatic cluster-randomized controlled trial with integrated process evaluation. *Trials* 25, 28 (2024). <https://doi.org/10.1186/s13063-023-07892-y>
- He Y, Zhang N, Wang J, He N, Du Y, Ding JX, et al. Evaluation of two intervention models on contraceptive attitudes and behaviors among nulliparous women in Shanghai, China: a clustered randomized controlled trial. *Reproductive Health*. 2017 Jun 15;14(1).
- Díez E, López MJ, Marí-Dell'Olmo M, Nebot L, Pérez G, Villalbi JR, et al. Effects of a counselling intervention to improve contraception in deprived neighbourhoods: a randomized controlled trial. *European Journal of Public Health*. 2017 Apr 18;28(1):10-5.
- McCarthy O, Ahamed I, Kulaeva F, Tokhirov R, Saibov S, Vandewiele M, et al. A randomized controlled trial of an intervention delivered by mobile phone app instant messaging to increase the acceptability of effective contraception among young people in Tajikistan. *Reproductive Health*. 2018 Feb 13;15(1).
- McCarthy OL, Wazwaz O, Jado I, Leurent B, Edwards P, Adada S, et al. An intervention delivered by text message to increase the acceptability of effective contraception among young women in Palestine: study protocol for a randomised controlled trial. *Trials*. 2017 Oct 3;18(1).

25. McCarthy OL, Aliaga C, Torrico Palacios ME, López Gallardo J, Huaynoca S, Leurent B, et al. An Intervention Delivered by Mobile Phone Instant Messaging to Increase Acceptability and Use of Effective Contraception Among Young Women in Bolivia: Randomized Controlled Trial. *Journal of Medical Internet Research*. 2020 June 22;22(6):e14073.
26. Brousseau EC, Clarke JG, Dumont D, Stein LAR, Roberts M, van den Berg J. Computer-assisted motivational interviewing for contraceptive use in women leaving prison: A randomized controlled trial. *Contraception*. 2020 May;101(5):327-332. doi: 10.1016/j.contraception.2020.01.004. Epub 2020 Jan 23. PMID: 31982416; PMCID: PMC7183882.
27. Kennedy CE, Yeh PT, Gaffield ML, Brady M, Narasimhan M. Self-administration of injectable contraception: a systematic review and meta-analysis. *BMJ Global Health*. 2019;4(2):e001350. doi:10.1136/bmjgh-2018-001350
28. Farris KB, Aquilino ML, Batra P, Marshall V, Losch ME. Impact of a passive social marketing intervention in community pharmacies on oral contraceptive and condom sales: a quasi-experimental study. *BMC Public Health*. 2015 Feb 13;15:143. doi: 10.1186/s12889-015-1495-x. PMID: 25885775; PMCID: PMC4340340.
29. Whitaker AK, Quinn MT, Martins SL, Tomlinson AN, Woodhams EJ, Gilliam M. Motivational interviewing to improve postabortion contraceptive uptake by young women: development and feasibility of a counseling intervention. *Contraception*. 2015 Oct;92(4):323-9. doi: 10.1016/j.contraception.2015.06.015. Epub 2015 Jun 18. PMID: 26093191; PMCID: PMC4575852.
30. Sun WH, Wong CKH, Wong WCW. A Peer-Led, Social Media-Delivered, Safer Sex Intervention for Chinese College Students: Randomized Controlled Trial. *J Med Internet Res*. 2017 Aug 9;19(8):e284. doi: 10.2196/jmir.7403. PMID: 28793980; PMCID: PMC5569248.
31. Martínez-García G, Ewing AC, Olugbade Y, DiClemente RJ, Kourtis AP. Crush: A Randomized Trial to Evaluate the Impact of a Mobile Health App on Adolescent Sexual Health. *J Adolesc Health*. 2023 Feb;72(2):287-294. doi: 10.1016/j.jadohealth.2022.09.019. Epub 2022 Nov 21. PMID: 36424332; PMCID: PMC11036548.
32. Mogro-Wilson C, Drake A, Coman E, Sanghavi T, Martin-Peele M, Fifield J. Increasing condom usage for African-American and hispanic young fathers in a community based intervention. *Ethn Health*. 2020 Apr;25(3):408-419. doi: 10.1080/13557858.2018.1427704. Epub 2018 Jan 18. PMID: 29347825.
33. Hewett, P.C., Austrian, K., Soler-Hampejsek, E. et al. Cluster randomized evaluation of Adolescent Girls Empowerment Programme (AGEP): study protocol. *BMC Public Health* 17, 386 (2017). <https://doi.org/10.1186/s12889-017-4280-1>
34. Dehlendorf C, Fox E, Sharma AE, Zhang J, Yang S, Centola D. Birth Control Connect: A randomized trial of an online group to disseminate contraceptive information. *Contraception*. 2020;101(6):376-383. doi:10.1016/j.contraception.2020.01.014
35. Sandøy IF, Mudenda M, Hegdahl HK, et al. Effectiveness of economic support, comprehensive sexuality education and community dialogue on early childbearing and sitting for grade nine exams among adolescent girls in rural Zambia: a cluster randomised trial. *EClinicalMedicine*. 2024;78:102934. Published 2024 Nov 15. doi:10.1016/j.eclinm.2024.102934
36. Najmi H, Ahmed H, Halepota GM, Fatima R, ul Haq M, Yaqoob A, et al. Community-based integrated approach to changing women's family planning behaviour in Pakistan, 2014–2016. *Public Health Action*. 2018 June 21;8(2):85–90.
37. Miller E, Tancredi DJ, Decker MR, McCauley HL, Jones KA, Anderson H, et al. A family planning clinic-based intervention to address reproductive coercion: a cluster randomized controlled trial. *Contraception*. 2016 Jul;94(1):58–67.
38. Flanagan S, Gorstein A, Nicholson M, et al. Behavioural intervention for adolescent uptake of family planning: a randomized controlled trial, Uganda. *Bull World Health Organ*. 2021;99(11):795-804. doi:10.2471/BLT.20.285339
39. McConnell, M., Rothschild, C. W., Ettenger, A., Muigai, F., & Cohen, J. (2018). Free contraception and behavioural nudges in the postpartum period: evidence from a randomised control trial in Nairobi, Kenya. *BMJ global health*, 3(5), e000888.
40. Memon ZA, Reale S, Ahmed W, Spencer R, Lashari TH, Bhutta Z, Soltani H Effects of Integrating Family Planning With Maternal, Newborn, and Child Health Services on Uptake of Voluntary Modern Contraceptive Methods in Rural Pakistan: Protocol for a Quasi-experimental Study *JMIR Res Protoc* 2022;11(3):e35291.