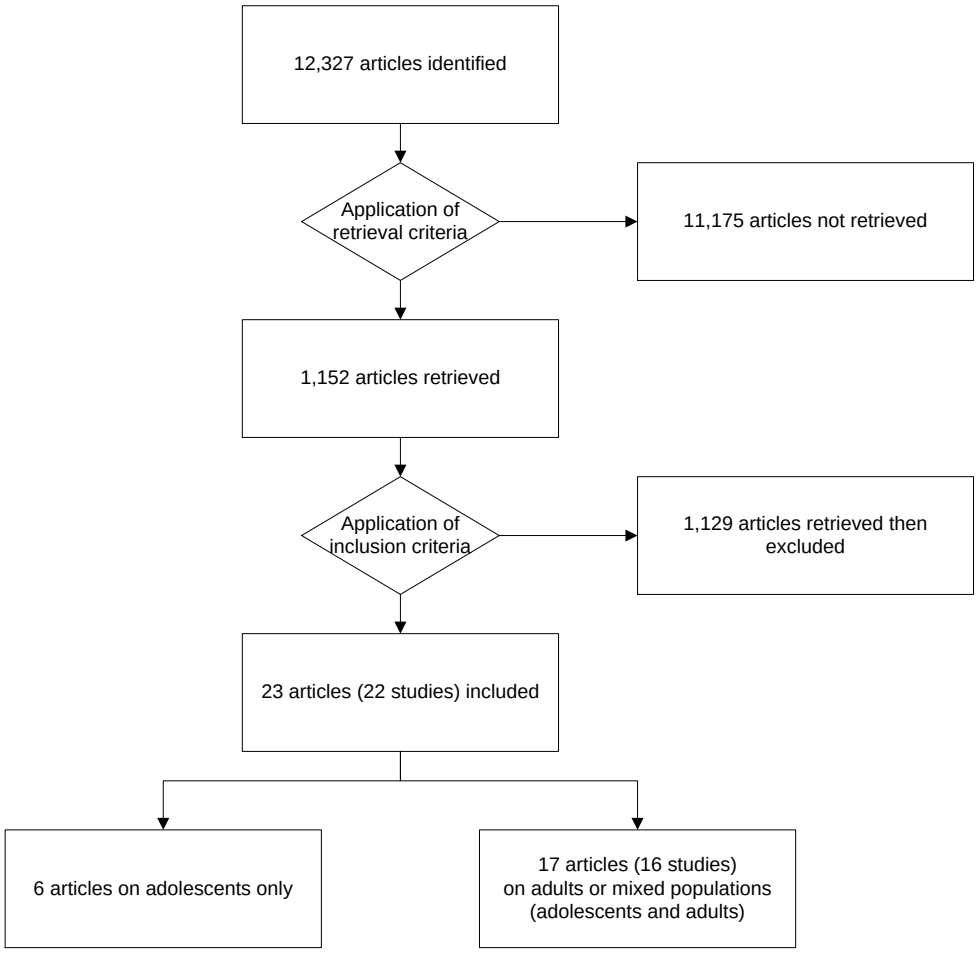
Appendix A. Search terms used in the systematic review

Concept	Search terms
PubMed search terms	
Family planning	"Family Planning Services"[Mesh] OR "Family Planning Policy"[Mesh] OR "Reproductive Health Services"[Mesh] OR "Family Planning" OR ("Title X") OR ("Planned Parenthood")
Contraception	"Contraception"[Mesh] OR "Contraceptive Agents"[Mesh] OR "Contraceptive Devices"[Mesh] OR ("Birth control") OR "Contraception Behavior"[Mesh]
Counseling	"Counseling"[Mesh]
Education	"Health Education"[Mesh] OR "Health Education"[All Fields] OR ("Health Educator")
PsychINFO search terms	
Family planning	(DE "Family Planning" OR DE "Birth Control" OR DE "Family Planning Attitudes") or "family planning" or "Planned parenthood" or "title X" or "birth control"
Counseling or education	((DE "Counseling" OR DE "Group Counseling" OR DE "Peer Counseling") OR (DE "Health Education")) or (behavi* OR "Reproductive life plan" OR education)
CINAHL search terms	
Family planning	(MH "Family Planning+") OR family planning OR (MH "Family Planning Policy") OR planned parenthood OR (title x)
Contraception	((MH "Contraception+") OR contraception OR (MH "Contraceptive Agents+") OR (MH "Contraceptive Devices+") OR (MH "Family Planning: Contraception (Iowa NIC)")) or (birth control)
Counseling or education	((MH "Counseling+") OR counseling OR (MH "Counseling Service (Saba CCC)+") OR (MH "Sexual Counseling") OR (MH "Reproductive Health") OR (MH "Health Education")) or (education or "Reproductive life plan")

Appendix B. Flow chart of study selection.



Appendix C. Evidence on Impact of Contraceptive Counseling in Clinical Settings

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Adolescents						
Berger (1987)[17] Funding source not stated U.S.	Pre-post study; 1 study group Urban adolescent clinic, NYC FU=avg of 7.8 months (range 2–12 months)	383 unmarried youth, aged 11–19; 61% female; 73% Hispanic; 45% Medicaid eligible; 35% sexually active Recruitment: NR	Discussions on establishing sexual values, ability and right to refuse sexual intercourse, abstinence and alternate forms of intimacy, contraceptive methods, and consequences of unprotected sex Moderate intensity Variable frequency but 2 visit minimum	Medium-term: increase contraceptive use Other: unintended negative consequences	Contraceptive use at last sex among sexually active youth significantly (***p*<0.001**) increased from baseline to FU from 22% to 70% for females and from 34% to 85% for males Counseling did not appear to promote entry into sexual activity among nonsexually active youth (3% of nonsexually active youth initiated sexual activity during FU)	Level II-3; high risk for bias Strengths: Staff received training on protocol Weaknesses: Self-report bias Recall bias High attrition rates Maturation bias Only 5% of youth presented to clinic for FP reasons Selection bias (those not returning to clinic excluded; number NR)
Brindis (2005)[19] California Wellness Foundation U.S.	Pre-post study; 1 study group 1 of 5 peer provider RH clinics, California FU=up to 36 months Compared clinic only vs clinic-telephone	1,590 sexually active youth, aged ≤14–20; 90% female; ~40% Hispanic Completed initial survey: females, *n*=7,486; males, *n*=2,151 Exclusions: females, *n*=6,062;	Peer provider approach with peers meeting with participants at intake and making FU calls (females only) shortly after first visit and quarterly afterwards to reinforce messages, answer questions, etc. Peer providers staff toll-free teen line, which youth can call to receive advice and information, schedule a	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase use of more effective methods, increase repeat/FU service use Other: unintended negative consequences	Females demonstrated significant (***p*<0.01**) changes from first to last visit in always using birth control (42% vs 61%, OR=1.9), contraceptive use at last intercourse (61% vs 74%, OR=1.8), and use of effective methods (10% vs 49%, OR=3.5); no significant differences for males	Level II-3; high risk for bias Strengths: Peer providers received training. Pregnancy tests used Weaknesses: Self-report bias Recall bias High attrition rates

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
		males, *n*=1,985; reasons for exclusion included not being sexually active, not receiving a FP visit or male exam during initial visit, or not making a FU visit 3 months later Recruitment: individuals requested clinic visit	clinic appointment, and get referrals for other services Moderate intensity Variable frequency		As compared with females receiving clinic- only intervention, females receiving FU telephone calls had significantly (***p*<0.05**) increased odds of returning for annual exam (OR=1.4) and decreased odds of positive pregnancy test at any FU clinic visits (OR=0.9) Female participants reported decreased likelihood of condom use (OR=0.7, ***p*<0.01**) from first to last visit	Selection bias (those not returning to clinic 90 days after initial visit [33%] excluded) FU time between first to last visit not reported
Cowley (2002)[20] Funding source not stated U.S.	Pre-post study; 1 study group Semi-rural comprehensive adolescent health clinic, Colorado FU=avg of 10.3 months (range 1–29 months)	39 females aged 13–18 considered high risk for early pregnancy with ambivalent pregnancy intentions or desiring pregnancy Enrolled: *n*=40 (68% Hispanic) Recruitment: youth seeking RH services (most seeking pregnancy testing) serially asked to participate	Detailed exploration, using motivational interviewing and narrative therapy, of 6 areas: impact of childbearing on life goals; youth hopes and dreams for future; long-term expectations for current relationship; reaction of parents if pregnancy were to occur; current health status; pros and cons of current vs delayed pregnancy; followed the FRAMES-D approach to counseling: feedback, responsibility, and advice-giving, menu of options, empathy, and self-efficacy Low intensity Frequency: variable	Medium-term: increase contraceptive use, increase use of more effective methods	15/39 (38%) began contraception with 5/39 (13%) choosing DMPA and 10/39 (26%) choosing OCs; on average, users made 3 clinic visits before requesting contraceptives	Level II-3; high risk for bias Strengths: Providers received training Used standard provider tool (e.g., Decisional Balance Sheet) Weaknesses: Small sample Self selection bias Recall bias Some (40%) enrolled youth desired pregnancy

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Hanna (1993)[23] Funding source not stated U.S.	RCT; 2 study groups 2 rural family planning clinics, Midwest FU=3 months	51 unmarried females aged 16–18 seeking OCs for first time; 98% white, NH Intervention group (*n*=26); control group (*n*=25); control group received SOC Potential enrollees: *n*=60 Completed study: *n*=39 Recruitment: NR	Based on King's theory of goal achievement through transactions and the Health Belief Model; included personalized discussions on maturity, responsibility, decision-making, benefits and barriers of contraceptive use, potential barriers to correct use, and developing plans to manage perceived barriers. Low intensity Frequency: counseling at 1st clinic visit	Medium-term: increase correct use Short-term: enhance other psychosocial determinants of contraceptive use	Intervention group demonstrated increased correct use of OCs (less frequently missed pills) vs control group (F=4.15, *p*=0.049) No significant differences between groups related to contraceptive perceptions (perceived benefits and barriers)	Level I; moderate risk for bias Strengths: Providers received training on protocol 85% participation rate Comparable study groups related to age Weaknesses: Low reliability of instrument Self-report bias Recall bias Small sample Short FU time for behavioral outcomes Blinding NR Allocation procedures including concealment NR
Kirby (2010)[24] William and Flora Hewlett Foundation U.S.	RCT; 2 study groups Reproductive health clinic affiliated with University of California, San Francisco	805 sexually active females aged 14–18 Intervention: *n*=402 (45% Latina; 75% attending HS; 7% married)	Regular services plus 9 FU telephone calls over 12 months that incorporated motivational interviewing to identify discrepancies in current risky behaviors and goals and to reinforce messages (e.g., effectiveness of hormonal method)	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase correct use, increase repeat/FU service use	While study participants as a whole reported an increase in contraceptive use at last intercourse, from 11% at baseline to 44% at 6 months, FU calls did not have any further impact on this outcome	Level I; moderate risk for bias Strengths: Comparable study groups related to age, education, and marital status Analyses adjusted for confounding variables

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
	FU=~21 months	Control: *n*=403 (35% Latina; 75% attending HS; 8% married); control group received SOC Recruitment: research staff and clinicians identified and approached potential participants at clinic	Moderate intensity Frequency: monthly/bimonthly	Short-term: improve satisfaction with service	Intervention did not demonstrate any effect on pregnancy rates; correct use of condoms, OCs, injectables, or patch; number of clinic visits; or satisfaction with services (data not shown) Although 89% of intervention group received at least 1 FU call, only 35% recalled receiving the calls	FU time ≥ 1 year Counselors received training in protocol Randomization assignment made using random number generator Weaknesses: Self selection bias Self-report bias Recall bias Poor intervention completion rates (i.e., counselors averaged ~2.7 of 9 completed calls per participant. Unclear how pregnancy was measured. Blinding NR Allocation concealment NR
Winter (1991)[36] Ford Foundation U.S.	CT; 2 study groups. 6 non-metropolitan family planning clinics, Pennsylvania (3 control clinics and 3	1,256 females aged 18 and younger; 98% white, NH Baseline data collected with *n*=251 (*n*=93 in experimental and *n*=158 in control groups; control	Psychosocial model that provided counseling, education, reassurance and social support; addressed peer pressure, parental involvement, confidential services, used visual aids to make information concrete, and scheduled initial visit as two appointments—1 for	Long-term: decrease teen pregnancy Medium-term: increase contraceptive use, increase continuation of use Short-term: improve knowledge, satisfaction with	Pregnancy rate among intervention group from original sample (3%) was lower than that of control group from original sample (6%), but differences were not statistically significant at ***p*<0.05** Significantly (***p*<0.05**) more intervention females were	Level II-1; high risk for bias Strengths: FU time ≥1 year Instruments had evidence of validity Staff received training in adolescent psychosocial development

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
	experimental clinics) FU=12 months	group received SOC) Treatment phase data collected with *n*=1,005 (*n*=425 in experimental and *n*=580 in control groups) FU at 6 months: *n*=~236 in experimental and *n*=~489 in control groups (calculated from manuscript data) FU at 12 months: *n*=~166 in experimental and *n*=~221 in control groups (calculated from manuscript data) Recruitment: personal information form administered at clinic reception area used to identify adolescents at high risk for UIP	information, 1 for medical exam Moderate intensity Frequency: initial plus 6 month FU	service, enhance other psychosocial determinants of contraceptive use	using some method at 6 months (97%), and using chosen method at 6 (92%) and 12 (90%) months vs control group females (92%, 85%, and 83%, respectively) No significant differences between groups in satisfaction Intervention group reported significantly (***p*<0.05**) greater ease coping with contraceptive related problems at 6 months FU Intervention group had significantly improved knowledge from baseline to FU (F=4.59, *p=0.032*); no difference in control group.	<u>Weaknesses</u>: Self selection bias Participation rate unknown Comparability of groups questionable (baseline data not collected for 80% of participants); experimental sites had elevated satisfaction scores at baseline. High attrition FU rate ≥15% different between groups at 6 months (~56% for experimental and 89% for control groups); similar at 12 months (39% and 38%, respectively) No comparison of completers and noncompleters performed Self-report bias Unclear how pregnancy was measured
Adults or Mixed Populations (Adults and Adolescents)						

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Adams-Skinner (2009)[15] NICHD, National Institute of Mental Health U.S.	Prospective cohort study; 2 study groups 4 community health care clinics serving underserved populations, NYC FU=6 months	78 sexually active females aged 15–32 had counseling sessions audiotaped (*n*=36 in intervention group; *n*=42 in control group who received SOC); 92% non-white, 60% high school or less 75/176 eligible females declined participation Recruitment: clients approached in waiting room of clinic	Grounded in motivational interviewing and relapse prevention, focused on client adoption and continued use of dual-method contraception; nurses used semistructured counseling and decision-making tool to help clients select contraception; positive and negative aspects of chosen methods discussed; nurses helped clients anticipate difficulties they might encounter with consistently and correctly using selected methods and helped them identify solutions; individualized action plans of challenges and solutions provided in writing for client to take home; nurses scheduled subsequent call or FU appointments to reinforce method use; counseling session audiotaped and coded to measure 3 domains—promotion of dual protection, relapse prevention counseling, and quality of nurse-client interaction Moderate intensity Frequency: 2 contacts in 6 months	<u>Medium-term:</u> Increase contraceptive use (condoms)	Among total sample, quality of nurse-client interaction was significantly (***p*<0.05**) associated with reduction of condom unprotected sex at 6 months FU, controlling for study group (client-defining behaviors, OR=1.57, 95% CI=1.25, 1.97; nurse-defining behaviors OR=1.60, 95% CI=1.04, 2.44) Among total sample, promotion of dual protection and relapse prevention techniques were not significantly associated with reduction of condom unprotected sex at 6 months FU, controlling for study group	Level II-2; high risk for bias <u>Strengths</u>: Comparable study groups related to age, ethnicity, education, marital status. Domain indices had moderate to high reliability <u>Weaknesses</u>: Selection bias Nonblinded coders Recall bias Self-report bias Small sample <65% recruitment rate Short FU time for behavioral outcomes

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Bender (2004)[16] Funding source not stated Iceland	RCT; 2 study groups University hospital abortion clinic FU=4–6 months postabortion	276 females aged 19–46 requesting pregnancy termination (*n*=148 in intervention group; *n*=128 in control group who received contraceptive information only); most (60%) completed primary education Recruitment: Individual contact at abortion scheduling visit	Intensive pretermination contraceptive counseling; included plotting contraceptive history to focus past, present, and future contraceptive use information together to raise participant awareness towards contraception Moderate intensity Frequency: 2 contacts in 6 months	Medium-term: Increase contraceptive use, increase use of more effective methods	No significant difference in the proportions of women in intervention and control groups who initiated postabortion contraceptive use (86.5% vs 85.2%, respectively) No differences in the uptake of more effective methods; OCs were chosen by 61% and 58% of intervention and control group women; injectables chosen by 12% and 11%, respectively	Level I; moderate risk for bias Strengths: FU rate ≤15% different between groups (70% for intervention and 61% for control groups) Women were blinded as to study group assignment Randomization assignment made using random numbers table Weaknesses: Significant background differences between groups (age, childbearing, abortion history, education) may have biased results Recall bias Self-report bias May not represent general family planning clients (postabortion sample) Allocation concealment NR
Boise (2003)[18] CDC U.S.	Pre-post study; 1 study group Medical office FU=1 month	85 females aged 18–44 (mean age=25); 38% Latina, 27% African American; 75% college educated; 69% cohabitating; 30	Brief individually tailored motivational counseling based on participant responses to risk assessment; variety of contraceptive choices discussed; readiness to use chosen method scored; barriers and aspects of	Medium-term: Increase contraceptive use, increase correct use	From baseline to 1 month FU (among completers), any contraceptive use increased from 74% to 91%, consistent condom use (among condom users) increased from 18% to 87%, and consistent OC use (among OC users) increased	Level II-3; high risk for bias Strengths: Providers received training on protocol Weaknesses: Self-report bias

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
		considered high risk for STI/HIV Recruitment: females seeking pregnancy test from medical office were requested to fill out screening questionnaire	motivation explored; counselor and participant negotiated risk-reduction steps for client to decrease risk of UIP and STI/HIV; methods provided directly or via referrals; FU offered and counselor made "booster" call to participant 2 weeks after initial session to review risk-reduction steps, identify barriers to completing steps and help overcoming those barriers Moderate intensity Frequency: initial plus FU contact 2–4 weeks later		from 48% to 100%; tests of significance NR	High attrition Recall bias Selection bias Small sample <65% recruitment rate Short FU time for behavioral outcomes Test of significance NR
Custo (1987)[21] Funding source not stated Italy	RCT; 2 study groups Study clinics FU=12–15 months	200 females aged 16–41 (*n*=100 in intervention group; *n*=100 control group who received SOC); other characteristics NR Recruitment: females attending study clinics for contraceptive information	Use of provider tool, Adjusted Contraceptive Score, after standard of care counseling; tool intended to help women select the most appropriate contraceptive method and increase satisfaction with chosen method Low intensity Frequency: initial visit	Long-term: decrease teen or UIP Medium-term: Increase use of more effective methods	-Intervention group had lower pregnancy rate (4%) vs control group (11%), but ns -Diaphragm use (most effective contraceptive method examined) significantly (***p*<0.05**) increased among intervention participants from baseline (9%) to FU (26%); no differences among controls (11% vs 16%, respectively); diaphragm use significantly (***p*<0.05**) higher among intervention participants at FU (26%)	Level I; moderate risk for bias Strengths: Used standard provider tool Comparable study groups related to age, RH history and economic background FU rate ≤15% different between groups (95% for intervention and 92% for control group) FU time ≥ 1 year Weaknesses: Recall bias

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
					than intervention participants (16%)	Recruitment rate NR Lack of blinding Allocation procedures including concealment NR
Gilliam (2004)[22] American College of Obstetricians and Gynecologists / Park-Davis Research Award in Contraception U.S	RCT; 2 study groups Resident run clinic serving low-income women receiving public assistance FU=12 months	33 unmarried females aged 15–25 with UIP who expressed intention to use OCs postpartum (*n*=18 in intervention group; *n*=15 in control group who received SOC); 100% African American; 37% college-educated; 75% unemployed Enrolled: *n*=43 12 month FU: *n*=25 (*n*=16 in intervention group and *n*=9 in control group) Recruitment: received informational flyer at time of 1st visit to clinic	Theory-based, multimedia, postpartum educational intervention and individual counseling prior to hospital discharge; counseling emphasized self-efficacy, what to do if a dose is missed, backup contraceptive methods, contact telephone numbers, and when to contact a nurse or physician; all written material was reviewed in detail; videotape based on principles of self-efficacy was viewed Low intensity Frequency: one time intervention immediately postpartum	Long-term: Decrease teen or unintended pregnancy Medium-term: Increase continuation of use Short-term: Increase knowledge	At 1 year, no significant differences between intervention and control groups in repeat pregnancy rates (12% vs 8%, respectively) or continued use of OCs (16% vs 12%, respectively) Among the participants with complete data at 12 months (*n*=14), a significant positive change in knowledge was observed vs control group	Level I; moderate risk for bias Strengths: FU time ≥ 1 year Research team members blinded to group assignment Randomization assignment made using random numbers table Allocation concealed Weaknesses: Small sample Self-report bias High attrition FU rate ≥15% different between groups (89% for intervention and 60% for control group) May not represent general family planning clients (postpartum sample)
Langston (2010)[25]	RCT; 2 study groups	222 females aged 18–45 postabortion (*n*=114 in intervention group;	Structured, standardized, nondirective counseling using a version of the WHO Decision-Making Tool;	Medium-term: increase use of more effective methods,	No significant differences between groups in choice of method (50% of intervention and 58% of control group	Level I; moderate risk for bias Strengths:

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Anonymous Foundation U.S.	Private practice setting; Columbia University Medical Center FU=3 months	*n*=108 in control group who received SOC); most Latina (>85%) and high school graduates (>65%); 94% sought induced abortion 250 randomized/ 380 screened 3 month FU: *n*=96 for intervention and *n*=90 for control group Recruitment: family planning clinic referral to private practice	trained counselor read and displayed a contraceptive flipchart in a private setting, with the various methods available for the participant to see and handle; counseling included both audio and visual components; participants were supplied note cards on which to write questions Low intensity Frequency: one time at visit to private practice setting	increase continuation of use	selected a very effective method (IUD, implant or sterilization); 42% of intervention and 34% of control group selected an effective method (injectable, ring, patch, or pill) -No significant differences between groups in continuation of chosen method at 3 months; among those choosing very effective methods, 3 month continuation rates were 85% and 77% for intervention and control groups; among those choosing effective methods, 3 month continuation rates were 68% and 68% for intervention and control groups	Comparable study groups related to background characteristics FU rate ≤15% different for groups (84% for intervention and 83% for control group) Providers received training on protocol Randomization assignment made using random numbers table Allocation concealed Weaknesses: Selection bias High attrition Short FU time for behavioral outcomes Lack of blinding May not represent general family planning clients (postabortion sample)
Lee (2011)[26] Data funded by AHRQ; PI funded by NICHD U.S.	Cross-sectional survey 4 primary care clinics, Pennsylvania	770 females aged 18–50; 94% White, NH; >85% at least some college Recruitment: invited to participate	Contraceptive counseling provided by primary care physician; may have included discussion of different contraceptive methods; little detail provided Low intensity	Medium-term: Increase contraceptive use	Participants who received counseling on any method had increased odds of reporting use of a hormonal method at last intercourse (OR=2.68, CI=1.48, 4.87) vs those who did not receive counseling	Level II-3; high risk for bias Strengths: Analyses adjusted for confounding variables Weaknesses: Recall bias

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
	FU=up to 1 month (7–30 days) post visit	immediately after index visit	Frequency: at index visit		Participants who received counseling about a specific method had increased odds of reporting use of that method at last intercourse (OR=4.78, CI=3.70, 11.37 for hormonal methods; OR=18.45, CI=4.88, 69.84 for LARCs)	Not all patients received same counseling Short FU time for behavioral outcomes Low response rate to survey (19%); responders were more likely to be white, have more education, and to be established patients at clinic
Namerow (1989)[27] Office of Population Affairs U.S.	CT; 2 study groups Hospital-based family planning clinic, NYC FU=12 months	823 females aged ≤17–≥23 (*n*=412 in intervention group; *n*=411 in control group who received SOC); 50% Latina; 41% African American; 56% high school graduates; 48% Medicaid Enrolled: *n*=914 Recruitment: family planning patients deemed in need of individual counseling	Contingency planning counseling program with 5 components—participant asked to articulate a pregnancy goal; participant's perceived probability of pregnancy is determined; specific method selected, the length of time for which it would be used, and what the participant would need to do to use it effectively specified; contingencies that might arise subsequently and interfere with correct use; and detailed plans for dealing with each contingency outlined Program also included opportunities to: specify in writing when patient would next have contact with counselor or make a clinic visit; what would be done if an appointment could not be	Long-term: Decrease teen or unintended pregnancy Medium-term: Increase correct use, increase repeat/FU service use	No significant difference between intervention and control groups in UIP rates at 6 and 12 months FU (~7% became pregnant in each group by 6 months, ~15% by 12 months); among previously pregnant females, those in intervention group had significantly (***p*<0.05**) decreased odds (50%) of experiencing UIP within 6 months vs those in control group; by 12 months, differences disappeared Among OC users (*n*=319), those in intervention vs control group reported significantly (***p*<0.05**) higher correct use (i.e., taking pills every day) (53% vs 43%); among OC users that had missed pills (*n*=166), those in intervention vs control group reported significantly	Level II-1; high risk for bias Strengths: High participation (90%) Comparable study groups related to age, ethnicity, education, marital status, Medicaid status, and past pregnancy FU time ≥ 1 year FU rate ≤15% different for groups (73% for both groups) Weaknesses: High attrition Recall bias Self-report bias Lack of blinding

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
			kept; and how the counselor and clinic could help participant practice effective contraception Participant received written copy of Pregnancy Prevention Plan Low intensity Frequency: Index visit		(***p*<0.01**) more women taking the forgotten pills appropriately (89% vs 68%) No difference in clinic attendance between the intervention and control groups was observed (percentages NR)	
Nobili (2007)[28] Funding source not stated Italy	RCT; 2 study groups University hospital FU=3 months	43 females aged 18–44 (*n*=21 in intervention group; *n*=22 in control group who received SOC) Eligible: *n*=70 Completed FU: *n*=20 in intervention group; *n*=21 in control group Recruitment: invited by staff to participate at time of visit to clinic to request pregnancy termination	Patient-centered contraceptive counseling; phase 1 included semi-structured interview that explored past and present contraceptive experiences, barriers to use, perceptions of risk and future plans; phase 2 offered education; presented advantages and disadvantages of available methods and explanations on how to obtain and use each method; phase 3 involved choosing method and knowledge test; participant questions and doubts were addressed Low intensity Frequency: single session with FU	<u>Medium-term:</u> Increase use of more effective methods <u>Short-term:</u> Increase knowledge, enhance other psychosocial determinants of contraceptive use	Intervention group demonstrated a significant (***p*<0.005**) increase in the use of effective methods between baseline (20%) and 1 and 3 months FU (65% and 80%, respectively); no changes in control group between baseline (19%) and FU were detected (32% and 38%, respectively) At baseline there was no difference in knowledge or attitudes towards contraception; at 1 month FU, the intervention group demonstrated significant (***p*<0.0005**) increase in both knowledge and positive attitude toward contraception vs nonsignificant results from control group	Level I; moderate risk for bias <u>Strengths</u>: Research team members blinded to group assignment Comparable study groups related to age, education, marital status, parity and occupation High completion rate (95%) FU rate ≤15% different for groups (95% for both groups) <u>Weaknesses</u>: Low participation (61%) Small sample size Short FU time for behavioral outcomes Allocation procedures including concealment NR

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
						May not represent general family planning clients (postabortion sample)
Petersen (2007)[29] Petersen (2007)[30] CDC, Association for Prevention, Teaching and Research U.S.	RCT; 2 study groups 3 primary health care settings in North Carolina FU=12 months	708 females aged 16–44 (*n*=336 in intervention group; *n*=372 in control group who received general preventive health counseling (e.g., smoking, diet); 62% white; 84% high school graduate or GED; 45% never married Eligible and enrolled: *n*=737 Complete FU data: *n*=329 in intervention group and *n*=335 in control group Recruitment: approached by study personnel at primary health care setting	Behavior-based contraceptive counseling using motivational interviewing techniques, including discussion of all available types of contraceptives and which method might be the most appropriate, and the opportunity for EC information and advance prescription; counselors evaluated participant pregnancy intention, contraceptive use patterns, and high risk sexual behaviors. Individualized risk reduction strategies discussed; participants obtained or received referral for any type of contraceptive; booster session focused on client progress toward meeting specific risk reduction steps and adopting consistent, effective contraceptive use Low intensity Frequency: initial counseling and 2-month booster session	<u>Long-term:</u> Decrease teen or unintended pregnancy <u>Medium-term:</u> Increase correct use <u>Short-term:</u> satisfaction with service	No significant difference in UIP between groups at 2, 8, or 12 months FU (percentages NR) Among condom users, the proportion reporting correct use (use during every act of intercourse) did not differ between intervention and control groups at any FU point Intervention participants reported high levels of satisfaction (82% reported that it was helpful to talk to the educator about contraception, 90% reported that the educator had focused on their individual concerns, and 93% reported that all of their questions had been adequately addressed)	Level I; moderate risk for bias <u>Strengths</u>: High participation rate (96% of eligible females were randomized) Comparable study groups related to age, education, marital status, and race/ethnicity High completion rate (98% of intervention and 90% of control group) FU rate ≤15% different for groups FU time ≥1 year Pregnancy tests used Randomization assignment made using random numbers table Allocation concealed <u>Weaknesses</u>: Recall bias Self-report bias Lack of blinding

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
						Some participants had ambivalent pregnancy intentions
Proctor (2006)[31] Carolinas Healthcare Foundation U.S.	RCT; 3 study groups Urban medical center (Carolinas Medical Center, North Carolina) FU=8 months	319 postpartum females, mean age 23.4; *n*=117 in video arm; *n*=101 in literature arm; *n*=101 in physician arm; 53% Latina; 36% African American; 42% less than high school education Initially randomized: *n*=329 Recruitment: individuals attending postpartum service were invited to participate in study	Three different postpartum contraceptive counseling methods: (1) video arm, which is a video that gives overview of risks and benefits of each method; physician is available to answer questions, but prohibited from engaging in discussion; (2) literature arm, which is companion literature that directs counseling; physician is available to answer questions, but prohibited from engaging in discussion; and (3) physician-patient face-to-face session, which include interaction that was not scripted or limited in any way. Low intensity Frequency: single instance for each intervention	Medium-term: Increase use of more effective methods Short-term: satisfaction with service	No difference was identified in the contraceptive method chosen between the 3 arms >90% of participants in each arm were satisfied with their counseling, with significantly (***p*<0.05**) higher levels of satisfaction in the physician-patient arm (99%)	Level I; high risk for bias Strengths: High completion rate (97% overall) Comparable study groups related to age, race, parity, education or mode of delivery Randomization assignment made using random numbers table Allocation concealed Weaknesses: Not all patients in the physician arm received same counseling Recruitment rate NR Completion rate by study group NR Blinding NR May not represent general family planning clients (postpartum sample)
Schunmann (2006)[32] Scottish Executive	RCT; 2 study groups	613 females, mean age 24; *n*=316 in intervention group; *n*=297 in control	Brief individualized discussion of future contraception during initial consultation and assessment; postabortion interview with	Long-term: Decrease teen or unintended pregnancy	At 24 months FU, case note review found that 15% of intervention and 10% of control group women had at	Level I; moderate risk for bias Strengths:

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
for the Scottish Health Demonstration Project Healthy Respect Scotland	Royal Infirmary of Edinburgh clinic FU=24 months	group who received SOC Assessed for eligibility: *n*=1,151 Complete FU data at 4 months: *n*=199 in intervention group and *n*=178 in control group Complete case notes at 24 months: *n*=302 in intervention group and *n*=268 in control group Recruitment: invited by staff to participate	physician and specialist trained in contraception to solicit details regarding demographics, full reproductive history, and contraceptive use at time of conception; preferred method of postabortion contraceptive ascertained with 3 month supply of chosen method of dispensed if possible; if IUD was chosen, appointment with local family planning clinic arranged for insertion 2 weeks postabortion; condoms and written information provided Low intensity Frequency: assessment and postabortion	Medium-term: increase contraceptive use, increase use of more effective methods, increase continuation of use	least 1 further UIP that resulted in termination (ns) At 4 months FU, 88% of intervention and 89% of control group women were using contraception (ns); significantly (***p*<0.05**) more women in the intervention (37%) than control (26%) group were using a longer-acting method (IUD, implant, injectable) At 4 months FU, continuation rates for intervention vs control women were 86% vs 80% for COCs, 64% vs 100% for POPs, 75% vs 100% for barrier methods, 66% vs 50% for IUD, 33% vs 20% for IUS, and 86% vs 69% for injectables (all were ns)	Comparable study groups related to age and deprivation (calculated from ZIP codes) FU rate ≤15% different for groups (63% for intervention and 60% for control group) FU time ≥ 1 year Randomization assignment (of calendar weeks) made using random numbers table Weaknesses: ≤65% recruitment rate High attrition Differences in background characteristic between completers and noncompleters related to parity, education, and past abortion) Recording bias Lack of blinding Allocation not concealed May not represent general family planning clients (postabortion sample)
Shlay (2003)[33]	RCT; 2 study groups	877 females aged ~15–49; *n*=437 in intervention group;	STI clinic-initiated enhanced contraceptive care followed by facilitated referral to a	Long-term: Decrease teen or unintended pregnancy	At 12 months FU, no significant differences between intervention and	Level 1; moderate risk for bias Strengths:

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
NICHD U.S.	STI clinic operated by Denver Public Health FU=12 months	*n*=440 in control group; both groups received condoms with spermicide and a referral list of PCPs for ongoing RH care; 30% Latina; 25% African American; 61% no health care insurance Eligible: *n*=1,909 Total available for FU: *n*=794 Recruitment: invited by staff to participate	PCP to establish relationship, improve contraceptive adherence, and decrease UIP; care included individual medical screening, individual counseling about all potential methods available at the clinic, and methods available through a PCP; participants had method of choice initiated in clinic at enrollment or early FU visit; multiple client contacts to facilitate PCP referral for ongoing care Low intensity Frequency: initial contact	<u>Medium-term:</u> Increase use of more effective methods, increase repeat/FU service use, increase dual-method use	control groups in pregnancy rates (24% vs 28%) Significantly (***p*<0.0001**) more intervention than control women reported use of effective contraceptives at 4 months (50% vs 22%) and 8 months (44% and 26%) FU; however, differences were ns by 12 months FU No significant differences between intervention and control participants in FU service use at 4, 8, or 12 month FU (68% vs 69%, 69% vs 65%, and 72% vs 72%, respectively) Significantly (***p*<0.01**) more intervention than control women reported dual protection use at 4 months (29% vs 14%) and 8 months (23% and 14%) FU; however, differences were ns by 12 months FU	High completion rate (91%) Comparable study groups related to background characteristics FU time ≥ 1 year <u>Weaknesses</u>: ≤65% recruitment rate Reliance on birth registry for individuals lost to FU limited information available Recall bias Blinding NR Allocation procedures including concealment NR May not represent general family planning clients (STI clinic sample)
Todres (1990)[34] Funding source not stated Canada	Pre-post study; 1 study group Planned Parenthood clinic, Toronto FU=None	62 females aged 14–35 (mean age=19); other characteristics NR Recruitment: questionnaire given to participant	Counseling delivered by public health staff versus nonpaid lay volunteers; details of counseling NR Low intensity Frequency: initial contact	<u>Short-term:</u> increase knowledge	Overall, women had significantly (***p*<.01**) higher knowledge scores after counseling Both types of counselors produced significant changes in knowledge levels (public	Level II-3; high risk for bias <u>Weaknesses</u>: Participation rate NR Small sample Characteristics of completers and noncompleters not examined

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
		with intake forms at admission			health staff, ***p*<0.05** and lay counselors, ***p*<0.20**)	Validity of instrument questionable Considered $p<0.20$ as statistically significant No behavioral outcomes examined
Weisman (2002)[35] CDC, Association of Schools of Public Health U.S.	Cross-sectional survey 16 county commercial provider network (nonprofit managed care company founded by University of Michigan) FU: None	898 females aged 18–44; 83% white, NH, at risk for UIP; at risk for UIP group: mean age=33 years, 30% completed graduate school Eligible: *n*=1,406 Recruitment: random sample selected from provider network enrollees	Contraceptive counseling provided in the past 2 years by providers in managed care plans (HMO or POS); counseling evaluated on 3 dimensions—exposure, content and personalization Intensity: NR Frequency: NR	Medium-term: increase contraceptive use Short-term: Quality and satisfaction with service, increase intentions to use contraception, enhance other psychosocial determinants of contraceptive use	Among women at risk of UIP, receiving personalized counseling plus information was significantly (***p*<0.05**) associated with increased odds of current contraceptive use (AOR=4.97), and intentions to use contraception next year (AOR=2.74) vs those receiving no counseling Among all women, receiving personalized counseling plus information was significantly (***p*<0.05**) associated with increased odds of satisfaction (AOR=3.07) vs those receiving no counseling; it was not significantly associated with self-efficacy to prevent UIP	Level II-3; high risk for bias Strengths: -Analysis adjusted for confounding variables Weaknesses: ≤65% recruitment rate Recall bias Validity of instrument questionable Cross-sectional design means causal claims about impact of counseling cannot be made
Yassin (2005)[37] Ford, W.T. Grant, and	Cross-sectional survey; 2 study groups	100 females aged 15–41 (median age=26) received counseling; compared with 422 control group	Dedicated and targeted pretermination of pregnancy contraceptive counseling provided by experienced family planning nurses; included full and detailed	Medium-term: increase contraceptive use, increase use of more effective methods	More women in intervention group used some contraceptive method postabortion (96%) than control group (40%); tests of significance not conducted	Level II-3; high risk for bias Strengths: High participation and completion rates (100%)

Reference/ Funding	Design/Setting	Population	Intervention	Outcomes	Results	Quality
Hewlett Foundations United Kingdom	Surgical abortion clinic, Burnley, U.K. FU: NR	women who received no counseling Completed assessment: 100 Recruitment: participants self-selected through requesting abortion services	discussion of all methods of contraception, informational literature, opportunity to choose a method based on discussion and literature, administration of chosen method at time of abortion or immediately postabortion; non-user-dependent methods were emphasized. Low intensity Frequency: single intervention		More women in intervention group used effective methods postabortion than control group (implant: 11% vs 0%, IUD: 47% vs 0%); tests of significance not conducted	Weaknesses: Cross-sectional design means causal claims about impact of counseling cannot be made Comparability of groups related to background characteristics unknown (not reported for the comparison group) Selection bias Confounding possible No tests of significance conducted May not represent general family planning clients (postabortion sample)

Note: Intensity of intervention defined as low (intervention took place during a single visit), moderate (intervention took place during more than one visit, but less than weekly), or high (intervention took place weekly).
AVG, average; COC, combined oral contraceptive pill; CT, prospective nonrandomized controlled trial; EC, emergency contraception; FP, family planning; FU, follow-up; HS, high school; IUD, intrauterine device; IUS, intrauterine system; LARC, long-acting reversible contraception (intrauterine device or implant); NICHD, National Institute on Child Health and Human Development; NR, not reported; NS, not significant; NYC, New York City; NH, non-Hispanic; NR, not reported; NS, not significant; OC, oral contraceptive; PCP, primary care provider; PI, principle investigation; POP, progestin only pill; RH, reproductive health; SOC, standard of care; STI, sexually transmitted infection; UIP, unintended pregnancy