Impact of Contraceptive Counseling in Clinical Settings:

A Systematic Review

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Abstract

Context—This systematic review evaluated the evidence on the impact of contraceptive counseling provided in clinical settings on reproductive health outcomes to provide information to guide national recommendations on quality family planning services.

Evidence acquisition—Multiple databases were searched during 2010–2011 for peer-reviewed articles published in English from January 1985 through February 2011 describing studies that evaluated contraceptive counseling interventions in clinical settings. Studies were excluded if they focused primarily on prevention of HIV or sexually transmitted infections, focused solely on men, or were conducted outside the U.S., Canada, Europe, Australia, or New Zealand.

Evidence synthesis—The initial search identified 12,327 articles, of which 22 studies (from 23 articles) met the inclusion criteria. Six studies examined the impact of contraceptive counseling among adolescents, with four finding a significant positive impact on at least one outcome of interest. Sixteen studies examined the impact of counseling among adults or mixed populations (adults and adolescents), with 11 finding a significant positive impact on at least one outcome of interest.

Conclusions—Promising components of contraceptive counseling were identified despite the diversity of interventions and inability to compare the relative effectiveness of one approach versus another. The evidence base would be strengthened by improved documentation of counseling procedures; assessment of intervention implementation and fidelity to put study findings into context; and development and inclusion of more RCTs, studies conducted among general samples of women, and studies with sample sizes sufficient to detect important behavioral outcomes at least 12 months post-intervention.

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Context

Unintended pregnancy rates in the U.S. remain high despite the wide variety of available contraceptive methods.[1,2] Approximately 49% of pregnancies each year are unintended, with higher rates among women aged <25 years, members of some racial or ethnic minority groups, and those with lower incomes.[1] Unintended pregnancy is preventable with correct and continued contraceptive use. An estimated 95% of unintended pregnancies occur among the one third of women at risk who did not use contraceptives at all during the month of conception or who used a method inconsistently or improperly.[3] Contraceptive method choice also influences the likelihood of an unintended pregnancy, as some methods are more effective than others. Some of the most effective contraceptives, based on rates of pregnancy with typical use, are sterilization, intrauterine devices (IUDs), and implants (Tier 1 methods); and injectables, oral contraceptives, contraceptive patches, vaginal rings, and diaphragms (Tier 2 methods).[4]

Contraceptive counseling provided by trained health-care professionals may reduce unintended pregnancy rates by encouraging women, men, and couples to choose a method concordant with their goals and preferences, and use the chosen method correctly. Although provision of contraceptive counseling is considered a core women's health competency for primary care providers,[5,6] barriers to its provision have been reported. Examples include lack of knowledge, training, and comfort with contraceptive counseling; misguided assumptions about a patient's pregnancy risk; reliance on patients to initiate discussions; limited time; and competing medical priorities.[7] Providers and researchers also do not have clear guidance on what constitutes contraceptive counseling—for example, is provision of information alone sufficient, and what topics must be included?

The U.S. Preventive Services Task Force (USPSTF) defines behavioral counseling interventions in clinical care as those activities delivered by primary care clinicians and related healthcare staff that assist patients in adopting, changing, or maintaining behaviors proven to affect health outcomes and health status.[8] However, specific activities that can facilitate effective contraceptive behaviors have not been described, nor is there clear evidence from past systematic reviews[9,10] to formulate key components of effective contraceptive counseling interventions.

The objective of this systematic review was to summarize the evidence on the impact of contraceptive counseling provided in clinical settings on reproductive health outcomes including contraceptive behaviors to guide national recommendations on quality family planning services. The information was presented to an expert technical panel in May 2011 at a meeting convened by the Office of Population Affairs and CDC.

Evidence Acquisition

The methods for conducting this systematic review have been described elsewhere.[11] In summary, six key questions were developed (Table 1) and an analytic framework was applied to show the relationships among the population of interest (women of reproductive age receiving services in a clinical setting); the intervention of interest (contraceptive counseling); and the short-, medium-, and long-term outcomes of interest (Figure 1). Search

terms were identified (Appendix A), which were used to search multiple electronic databases during 2010–2011 to identify potential articles published from January 1985 through February 2011. A targeted search was rerun in March 2015 to identify newly published articles since the initial search. Studies were not considered if they focused primarily on prevention of HIV or sexually transmitted infections (STIs); focused solely on men; or were conducted outside the U.S., Europe, Australia, or New Zealand.

Selection of Studies

Retrieval and inclusion criteria identical across reviews in this series have been described elsewhere.[11] Articles also must have evaluated a family planning counseling intervention in a clinic-based setting excluding school-based clinics. For the purpose of this review, we defined contraceptive counseling as an interactive process between provider and client intended to help the client achieve a reproductive health goal. This definition was developed after considering other counseling definitions from the USPSTF,[8] the American Counseling Association,[12] and a dictionary of public health terms and concepts.[13]

Some inclusion criteria were specific to key questions. For Questions 1–3, which sought to examine the relationships between contraceptive counseling and improved long-, medium-, and short-term outcomes, studies had to include a comparison group. Articles that described a multicomponent program (e.g., counseling in addition to a noncounseling component) had to report the impact of the counseling component independent of the noncounseling component. For Questions 4–6, which sought to examine unintended negative consequences and barriers and facilitators, articles had to describe a study that examined the impact of counseling on at least one outcome of interest and met the inclusion criteria for Key Questions 1–3.

Assessment of Study Quality and Synthesis of Data

The quality of each piece of evidence identified by the initial search was assessed using the grading system developed by the USPSTF.[14] Each counseling intervention was also evaluated on its level of intensity using a definition developed for this review. Findings are reported separately for studies conducted among adolescents and those conducted among adults or mixed populations (adults and adolescents). Findings are also stratified by long-, medium-, and short-term outcomes. As a result, studies that examined multiple outcomes may be discussed more than once. Although short-term outcomes are fully described in the evidence table, they are not discussed in detail in the text. Summary measures of association were not computed across studies because of the diversity of the interventions, study designs, and populations. Articles published since the initial search were not incorporated into the evidence table because we wanted to only include information considered during the May 2011 expert technical panel to guide national recommendations on quality family planning services.

Evidence Synthesis

The initial search strategy identified 12,327 articles (Appendix B). After applying the retrieval criteria, 1,152 articles were reviewed more closely. Of these, 23 articles[15–37] met

the inclusion criteria and are summarized in detail in the evidence table (Appendix C). Findings from two studies[29,30] are described together because they used the same sample of women. Excluded studies included review articles, those not relevant to the key questions, those conducted in developing nations, and those focusing primarily on HIV/AIDs or STI prevention. Of the 22 studies included in this review, six[17,19,20,23,24,36] examined the impact of contraceptive counseling among adolescents, and 16[15,16,18,21,22,25–35,37] (from 17 articles) examined the impact among adults or mixed populations (adults and adolescents). Although many studies were conducted among the general population of women seeking contraceptive services, five[16,25,28,32,37] were conducted among postabortion samples, two[22,31] were conducted among postpartum samples, and one[33] was conducted among women seeking services at an STI clinic.

Adolescents

Of the six studies that examined the impact of contraceptive counseling among adolescents, two[23,24] were RCTs rated as having moderate risk for bias, one[36] was a prospective, nonrandomized controlled trial rated as having high risk for bias, and three[17,19,20] were pre–post studies rated as having high risk for bias.

A variety of outcomes were examined, ranging from reducing unintended pregnancy to enhancing psychosocial determinants of contraceptive use (e.g., perceived benefits of contraception). Four studies[19,20,24,36] examined long-term outcomes, six[17,19,20,23,24,36] examined medium-term outcomes, and three[23,24,36] examined short-term outcomes. Five[19,20,23,24,36] of the six studies examined multiple outcomes. None of the studies reported barriers or facilitators for clinics or clients, but two studies[17,19] reported on unintended negative consequences.

Sample sizes in the six studies ranged from 39[20] to 1,590[19] and all participants were aged 11–18 years. Four studies[19,20,24,36] recruited participants from health clinics; the recruitment sites of the other two studies[17,23] were not reported. A different model or approach to counseling was used in each of the six studies. Examples included use of peer providers,[19] motivational interviewing and narrative therapy,[20,24] a model based on a theory of goal achievement,[23] and extensive follow-up telephone calls.[24] Counseling interventions also varied in intensity; four[17,19,24,36] were rated as moderate intensity, whereas two[20,23] were rated as low intensity. Appendix C describes the details of each study; Table 2 summarizes findings by outcome of interest.

Of the three adolescent studies[19,24,36] that examined the impact of contraceptive counseling on long-term outcomes, one[19] found a statistically significant positive impact of counseling on decreasing teen pregnancy. In this pre–post study of 1,590 sexually active youth recruited from one of five reproductive health clinics in California, female adolescents were followed for up to 36 months after receiving counseling from a peer provider at intake. Peer providers were used to enhance the quality of the provider–client relationship. Participants also received quarterly follow-up telephone calls to reinforce messages and answer questions. Female adolescents that received both the clinic and telephone counseling components had significantly (*p*<0.05) lower odds (OR=0.9, CI not reported) of a positive pregnancy test at any follow-up clinic visit than those who received only the clinic counseling component.[19]

The other two studies[24,36] found no statistically significant effect of counseling on unintended pregnancy rates.

The six adolescent studies that examined the impact of contraceptive counseling on medium-term outcomes investigated a variety of outcomes. Of the five studies[17,19,20,24,36] that examined contraceptive use (i.e., use of some method at a given point in time), three[17,19,36] found a statistically significant impact of moderate-intensity counseling interventions. In one[36] of these studies, a prospective, nonrandomized controlled trial of 1,256 female adolescents, significantly ($p<0.05$) more of those in the intervention group (who received a psychosocial counseling intervention that addressed peer pressure, parental involvement, and confidential services) were using some method of contraception at 6 months (97%) than those in the control group (92%) who received the standard of care. However, use at 12 months did not significantly differ between intervention (96%) and control (92%) participants. In the second study,[17] which used a pre–post design, contraceptive use among 383 unmarried youth was examined before and after receiving a counseling intervention that included discussions on establishing sexual values, ability and right to refuse sexual activity, abstinence and alternative forms of intimacy, contraceptive methods, and consequences of unprotected sex. Among sexually active participants, contraceptive use at last intercourse significantly ($p<0.001$) increased from 22% (baseline) to 70% (follow-up) for female adolescents and from 34% to 85% for male adolescents; average follow-up was 7.8 months. The third study,[19] which also used a pre–post design, found a significant impact of a peer provider counseling model in which intervention participants received quarterly follow-up telephone calls after receiving counseling from a peer provider at intake. Contraceptive use at last intercourse significantly ($p<0.01$) increased for female participants from first (61%) to last (74%) clinic visit, but no significant differences were found for male participants. The remaining two studies either found no statistically significant effect of counseling on contraceptive use[24] or observed some uptake in contraceptive use but did not conduct statistical testing.[20]

Of two studies[19,20] that examined use of more effective contraceptives (either shifting from using less effective to more effective methods or initiating methods with higher rates of typical use effectiveness), one[19] found a statistically significant impact. In this pre–post study of peer provider counseling, female adolescents demonstrated significant ($p<0.01$) changes from first (10%) to last (49%) clinic visit in their use of effective contraceptives, defined as methods with <5% of women experiencing a contraceptive failure during the first year of typical use.[19] The other study[20] observed some uptake in the use of more-effective methods, but statistical testing was not conducted.

Two studies[23,24] examined the impact of counseling interventions on correct use of contraceptives (e.g., taking all oral contraceptives on time), with one[23] finding a statistically significant impact. In this RCT, 51 female adolescents seeking oral contraceptives for the first time were randomized to either receive a low-intensity counseling intervention based on a theory of goal achievement ($n=26$) or regular counseling services ($n=25$). Intervention participants demonstrated significantly ($p<0.05$) increased correct use of oral contraceptives (i.e., less frequently missed pills) at 3-month follow-up versus control group participants.[23]

The other study[24] found no statistically significant effect of the counseling intervention on correct use of condoms, oral contraceptives, injectables, or patches.

One study[36] examined continuation of contraceptive use (i.e., continued use of a selected method over time) and found a statistically significant impact. In this prospective, nonrandomized controlled trial that tested a counseling intervention that addressed peer pressure, parental involvement, and confidential services, significantly ($p<0.05$) more female adolescents in the intervention group were using their chosen method at 6 (92%) and 12 (90%) months versus the control group (85% and 83%, respectively), which received the standard of care.[36]

Two studies[19,24] examined use of repeat or follow-up services, with one[19] finding a statistically significant impact. In the first study, which was a pre–post study of peer provider counseling, female adolescents that received both clinic counseling and telephone counseling had significantly ($p<0.05$) higher odds (OR=1.4, CI not reported) of returning for an annual exam than those who received only clinic counseling.[19] The second study[24] found no statistically significant effect of the counseling intervention on the number of clinic visits made by the client.

Of the three adolescent studies[23,24,36] that examined the impact of contraceptive counseling on short-term outcomes, two[24,36] examined quality and satisfaction with services, one[36] examined changes in participant knowledge, and two[23,36] examined psychosocial determinants of contraceptive use. One controlled trial[36] of a psychosocial model found significantly ($p<0.05$) improved knowledge at 12-month follow-up and more ease coping with contraceptive problems at 6-month follow-up among the intervention group compared with the control group. No other statistically significant effects of counseling on short-term outcomes were found.

Two studies[17,19] examined unintended negative consequences associated with contraceptive counseling in family planning settings. The first[17]—a pre–post study conducted among a sample of 383 unmarried youth, 65% of which were not yet sexually active—investigated whether receipt of counseling promoted sexual debut. Findings suggested that exposure to counseling did not promote entry into sexual activity among non–sexually active youth, as only 3% of those not sexually active at baseline had initiated sexual activity at follow-up, which ranged from 2 to 12 months (average of 7.8 months). In the second study,[19] which sought primarily to understand the impact of a peer provider counseling model on contraceptive use behaviors and teen pregnancy, female participants reported significantly ($p<0.01$) lower odds (OR=0.65, CI not reported) of condom use from first (35%) to last (27%) visit, which was an unexpected and undesirable finding. The authors concluded that the reduction in condom use may have occurred because of the increase in female participants' use of more-effective methods (a change that was observed in the study), but no tests of association were conducted to support this hypothesis.

Adults or Mixed Populations (Adults and Adolescents)

Of the 16 studies[15,16,18,21,22,25–35,37] (from 17 articles) that examined the impact of contraceptive counseling among adults or mixed populations (adults and adolescents),

nine[16,21,22,25,28,29,31–33] were RCTs. Of these nine studies, eight were rated as having moderate risk for bias and one[31] was rated as having high risk for bias. One[27] was a prospective, nonrandomized controlled trial, one[15] was a prospective cohort study, two[18,34] were pre–post studies, and three[26,35,37] were cross-sectional surveys. All of the non-RCT studies were rated as having high risk for bias.

A variety of outcomes were examined, ranging from reducing unintended pregnancy to enhancing psychosocial determinants of contraceptive use (e.g., intentions to use contraception the following year). Six studies[21,22,27,29,32,33] examined long-term outcomes, 15[15,16,18,21,22,25–29,31–33,35,37] examined medium-term outcomes, and five[22,28,31,34,35] examined short-term outcomes. Thirteen[16,18,21,22,25,27–29,31–33,35,37] of the 16 studies examined multiple outcomes. None of the studies reported barriers or facilitators for clinics or clients or reported on unintended negative consequences.

Sample sizes in the 16 studies ranged from 33[22] to 898[35]; all participants were aged 14–50 years and were recruited from some type of clinical setting. A different counseling model or approach was used in each of the 16 studies. Examples included motivational interviewing,[15,18,29] use of specific provider tools (e.g., WHO Decision-Making Tool),[21,25] development and use of individualized action plans,[15,22,27] consideration of barriers to use or self-efficacy,[18,22,27,28] and follow-up telephone calls to reinforce messages.[15,18] Counseling interventions also varied in intensity: Three[15,16,18] were rated as moderate intensity, 12[21,22,25–29,31–34,37] were rated as low intensity, and the intensity was not reported for one study.[35] Appendix C describes details of each study; Table 3 summarizes findings by outcome of interest.

Of the six studies[21,22,27,29,32,33] among adults or mixed populations that examined the impact of contraceptive counseling on long-term outcomes, none found a statistically significant impact of counseling on decreasing teen or unintended pregnancy. One prospective, nonrandomized controlled trial[27] that compared 412 female participants who received a contingency plan counseling intervention with 411 who received the standard of care found a significantly ($p<0.05$) reduced likelihood of unintended pregnancy at 6-month follow-up among previously pregnant intervention participants than among previously pregnant control participants (subgroup sample sizes not stated); however, these differences dissipated by 12 months.

Of the 15 studies among adults or mixed populations that examined the impact of contraceptive counseling on medium-term outcomes, a variety of outcomes were investigated. Seven studies[15,16,18,26,32,35,37] examined contraceptive use, with three[15,26,35] finding a statistically significant impact of counseling. One prospective cohort study[15] followed 78 sexually active female participants for 6 months and compared those who received a counseling intervention grounded in motivational interviewing and relapse prevention that promoted dual-method contraceptive use ($n=36$) with control group participants who received the standard of care ($n=42$). Counseling sessions for both groups were audiotaped and coded to measure three components of interest: promotion of dual protection, relapse prevention counseling, and quality of nurse–client interaction. For the total sample (intervention and control groups combined), the quality of the nurse–client

interaction was significantly (*p*<0.05) associated with condom use at 6-month follow-up, after adjustment for study group. Promotion of dual protection and relapse prevention techniques were not significantly associated with condom use at 6-month follow-up. The second study,[35] cross-sectional in design, examined patient-reported contraceptive counseling received in the past 2 years from managed care providers in a 16-county commercial provider network on three components: exposure, content, and personalization. Among women considered at risk of unintended pregnancy (i.e., fertile, non-pregnant, heterosexually active, not seeking pregnancy, with a non-sterilized partner), receiving personalized counseling and information was significantly (*p*<0.05) associated with increased odds of current contraceptive use (AOR=4.97, CI not reported) compared with those who received no counseling. The third study[26] that found a significant impact of counseling on contraceptive use was a cross-sectional survey conducted among 770 women recruited from four primary care clinics. This study asked women about the contraceptive counseling they received from their primary care physician 7–30 days after their visit. Participants who received counseling from a physician on any method had significantly (*p*<0.05) increased odds of reporting use of a hormonal method at last intercourse (OR=2.68, 95% CI=1.48, 4.87) compared with those who did not receive any counseling. In addition, those who received counseling on a specific method had higher odds of reporting use of that method (OR=4.78, 95% CI=3.70, 11.37, for hormonal methods and OR=18.45, 95% CI=4.88, 69.84, for long-acting, reversible methods). Of the remaining four studies that examined contraceptive use, two[16,32] found no statistically significant effect of counseling on contraceptive use, and two[18,37] reported an improvement but did not conduct tests of statistical significance.

Eight studies[16,21,25,28,31–33,37] examined use of more-effective contraceptives, with four[21,28,32,33] finding a statistically significant impact of counseling. One RCT[21] examined 100 female participants who received standard counseling and a counseling intervention that used a standardized provider tool intended to help women select the most appropriate behavioral or barrier contraceptive method and increase satisfaction with their chosen method. This group was compared with 100 female participants who received only standard counseling to examine changes in method selection from baseline to 12–15-month follow-up. Diaphragm use (the most effective contraceptive method examined in the study) significantly (*p*<0.05) increased among intervention participants from baseline (9%) to follow-up (26%), whereas no significant differences from baseline to follow-up were detected among controls (11% vs 16%, respectively). In addition, the rate of diaphragm use among intervention participants at follow-up (26%) was significantly (*p*<0.05) higher than the rate among control participants (16%). In the second study,[28] another RCT of 43 women undergoing pregnancy termination, women who received a patient-centered counseling intervention that explored past and present contraceptive experiences, barriers to use, perceptions of risk, and future plans (*n*=21) were compared with those who received the standard of care (*n*=22). The intervention group demonstrated a significant (*p*<0.005) increase in the proportion of women using an effective contraceptive method (defined by the authors as IUDs, oral contraceptives, vaginal rings, contraceptive patches, condoms, or emergency contraception; 65% and 80% at 1 and 3 months, respectively) versus baseline (20%), whereas no significant changes between follow-up (32% and 38% at 1 and 3 months,

respectively) and baseline (19%) were found in the control group. The authors did not compare the change from baseline to follow-up between the intervention and control groups. In the third study,[32] another RCT of 613 female participants seeking pregnancy termination, the intervention group received brief individual counseling to discuss future contraceptive needs during an initial consultation and a posttermination interview with a specialist trained in contraception (*n*=316). These women were compared with women in the control group who received the standard of care (*n*=297). At 4-month follow-up, significantly (*p*<0.05) more women in the intervention group (37%) than the control group (26%) were using a longer-acting method (i.e., IUD, implant, or injectable). In the fourth study,[33] also an RCT, 877 women seeking services at an STI clinic were randomized into two groups, both of which received condoms with spermicide and a referral list of primary care providers for ongoing reproductive health care. The intervention group (*n*=437) received enhanced contraceptive care that included individual counseling, initial provision of contraception, and a facilitated referral to a primary care provider. Significantly (*p*<0.0001) more intervention than control participants reported use of effective contraceptives (defined by the authors as sterilization; use of IUDs, implants, injectables, oral contraceptives, or spermicide with condoms for > 75% of coital acts; and sexual abstinence) at 4 months (50% and 22%, respectively) and 8 months (44% and 26%, respectively). Differences were not significant at 12-month follow-up. Of the remaining four studies, three[16,25,31] found no statistically significant effect of counseling on effective contraceptive use, and one[37] observed an improvement but did not conduct tests of statistical significance.

Three studies[18,27,29] examined the impact of counseling on correct use of contraceptives (e.g., taking oral contraceptives appropriately every day), with one[27] finding a statistically significant positive impact. In this study, a prospective, nonrandomized controlled trial of 823 women, intervention participants (*n*=412) received contingency plan counseling that included asking participants to articulate a pregnancy goal; assess their perceived probability of pregnancy; list contingencies that might arise and interfere with correct use of their chosen method (e.g., not having the method available at time of intercourse); and develop detailed plans for dealing with each contingency.[27] Intervention participants were compared with control group participants who received the standard of care (*n*=411). Among oral contraceptive users (*n*=319), a significantly (*p*<0.05) higher proportion of those in the intervention group (53%) versus those in the control group (43%) reported correct use (i.e., taking oral contraceptives every day). In addition, among users of oral contraceptives who had missed pills (*n*=166), significantly more women in the intervention versus control group reported taking the forgotten pills appropriately (89% and 68%, respectively, *p*<0.01). Of the remaining two studies, one[29] did not find a statistically significant impact of counseling on increasing correct use, and the other[18] observed an improvement in correct use but did not conduct tests of statistical significance.

Three studies[22,25,32] examined continuation of contraceptive use, and two studies[27,33] examined use of repeat or follow-up services, with none finding a statistically significant positive impact of counseling. One study[33] examined the impact of counseling on dual-method contraceptive use (i.e., use of an effective method to prevent pregnancy plus a condom). In this RCT of 877 women seeking services at an STI clinic, all participants

received condoms with spermicide and a referral list of primary care providers for ongoing reproductive health care. Those in the intervention group also received enhanced contraceptive care that included individual counseling, initial provision of contraception, and a facilitated referral to a primary care provider. Significantly (*p*<0.01) more intervention than control participants reported dual-method use at 4 months (29% and 14%, respectively) and 8 months (23% and 14%, respectively), but differences were not significant at 12-month follow-up.

Of the five studies[22,28,31,34,35] among adults or mixed populations that examined the impact of contraceptive counseling on short-term outcomes, two[31,35] examined quality and satisfaction with services, three[22,28,34] examined changes in participant knowledge, and two[28,35] examined psychosocial determinants of contraceptive use. Among these studies, two[31,35] found positive impacts for satisfaction with services, three[22,28,34] for participant knowledge, and two[28,35] for psychosocial determinants.

Discussion

This systematic review identified 22 studies that examined the impact of contraceptive counseling in clinical settings and met the inclusion criteria. Of these, six studies[17,19,20,23,24,36] examined the impact of counseling among adolescents, with four finding a statistically significant positive impact of low-intensity[23] or moderate-intensity[17,19,36] counseling interventions on at least one outcome of interest. Three[19,24,36] of the six adolescent studies examined long-term outcomes, with one[19] finding a statistically significant positive impact of counseling. This study found that youth who received clinic-based contraceptive counseling from a peer provider and follow-up telephone calls had lower odds of teen pregnancy than those who received only clinic-based counseling. All six studies examined medium-term outcomes, of which four[17,19,23,36] found a statistically significant positive impact on at least one outcome of interest. Finally, one[36] of three studies[23,24,36] that examined short-term outcomes found a statistically significant positive impact on at least one outcome of interest.

Of the 16 studies[15,16,18,21,22,25–29–31–35,37] that focused on adults or mixed populations (adolescents and adults), 11 found a statistically significant positive impact of counseling interventions with low,[21,22,26–28,31–34] moderate,[15] or unrated[35] intensity on at least one outcome of interest. Six[21,22,27,29,32,33] of the 16 adult or mixed population studies examined long-term outcomes. None found a statistically significant positive impact of counseling on decreasing teen or unintended pregnancy. Of the 15 studies that examined medium-term outcomes, eight[15,21,26–28,32,33,35] found a statistically significant positive impact on at least one outcome of interest. Finally, all five studies[22,28,31,34,35] that examined short-term outcomes found a statistically significant positive impact on at least one outcome of interest.

No studies that examined the impact of counseling for adolescents, adults, or mixed populations reported information on barriers or facilitators for clinics offering counseling or clients achieving positive outcomes after receiving counseling in family planning settings. Two studies on adolescents examined unintended negative consequences, with one[17] finding that counseling did not promote sexual debut among non–sexually active participants, and

the other[19] finding decreased use of condoms among female participants, possibly because of an increase in use of more-effective methods at preventing pregnancy.

Because each study examined a different counseling intervention—some of which incorporated multiple approaches—this review was unable to assess the impact of a single counseling component separate from the others or to compare the relative effectiveness of one approach versus another. Nevertheless, components of counseling approaches that resulted in some statistically significant positive change in long-, medium-, or short-term outcomes can be considered when developing counseling guidelines for family planning clients.

Promising components that emerged from the studies in this systematic review include an emphasis on the quality of interaction between counselor and client (e.g., developing rapport)[15,19,28,31]; personalizing discussions to meet clients' individual needs[23,28,32,33,35]; and addressing psychosocial determinants of contraceptive use behaviors (e.g., perceived benefits and barriers, outcome expectations).[22,23,28,32,36] Other promising components include setting goals; discussing possible difficulties with achieving goals (e.g., side effects, difficulty obtaining the method); developing action plans to deal with potential difficulties[15,22,23,27]; and multiple contacts with clients.[15,17,19,33,36]

When examining the number of outcomes positively impacted by a single counseling intervention in studies included in this systematic review (Tables 2 and 3), it is not surprising that all five[19,28,33,35,36] interventions for which a significant impact on multiple outcomes was detected included one,[35] two,[19,33,36] or three[28] of the promising components. For example, one study[19] that found positive impacts on both long- and medium-term outcomes (including decreased odds of pregnancy) used peer providers to enhance the quality of the provider–client relationship and quarterly telephone calls by peer providers to reinforce counseling messages and answer questions.

Evidence from other fields, including chronic disease management and psychotherapy, support the importance of the provider–client relationship.[38–40] Previous research has suggested that 30% of a client's improvement after counseling is attributed to the provider's empathy, warmth, acceptance, and encouragement.[38] Qualitative evidence on women's preferences for contraceptive counseling suggests that women prefer caring interpersonal relationships with providers and want their values and preferences emphasized.[41] Client-centered health techniques, such as motivational interviewing and shared decision making,[42–46] may be one way to promote the quality of provider–client interaction and personalize counseling messages. Core components of client-centered care have been developed and described elsewhere.[47] Specific to contraceptive counseling and drawn from the health communications literature, best practices to promote quality provider–client communication, both relational and exchange of essential information, have also been described.[48]

The chronic disease literature has also suggested that goal setting can be used as a behavior change strategy in health education,[49,50] and other areas of behavioral counseling (related to nutrition, smoking cessation, and physical activity) have suggested the need for repeated

counseling sessions to support positive behavior change.[51–53] Additionally, several of the promising components identified in this systematic review were recommended as part of 12 principles for providing contraceptive counseling to adolescents, based on reviews of scientific literature on decision making and contraceptive behavior.[54]

Limitations

This body of evidence has several limitations. Of the 22 studies in this review, none were determined to have a low risk for bias, and more than half[17–20,26,27,31,34–37] were determined to have a high risk for bias. Studies were considered to be at risk for bias because of selection bias, recall bias, self-report bias, attrition bias, or short follow-up times for behavioral outcomes. Among the examined RCTs, primary weaknesses included lack of[21,25,29,32] or no reporting of[23,24,31,33] blinding; no reporting of allocation procedures, including concealment,[16,21,23,24,28,33] and no concealment of allocation.[32] Some studies[15,18,20,22,23,28,34] were conducted among small samples (<100) and may have been underpowered to detect meaningful differences in outcomes. Other studies[24,35,36] did not state clearly how outcomes of interest were measured or they used instruments with questionable validity. For studies that examined use of more-effective contraceptives, some[21,28,33] included methods with lower rates of typical use effectiveness[4] in their categorization of effective methods (e.g., diaphragm, condoms). Some studies[16,32,34,36,37] failed to adequately establish comparability between study groups, limiting the ability to definitively attribute outcomes to the counseling intervention. Two studies[20,29] included participants who either desired pregnancy at enrollment or had ambivalent pregnancy intentions, which may have biased findings related to contraceptive use behaviors and pregnancy rates. As previously mentioned, some studies were conducted among samples of women receiving postpartum care,[22,31] postpregnancy termination care,[16,25,28,32,37] or services at an STI clinic.[33] Although these are important subpopulations for interventions, these participants may not best represent the general population of people seeking family planning services. Finally, 11[15,19,21–25,27,28,32,36] of 18[15,16,19,21–29,31–33,35–37] studies that included a comparison group in the design or analysis compared intervention participants with participants who received standard of care contraceptive counseling. The estimated effects of the interventions in these studies would likely be less than comparable estimates had the comparison group received no contraceptive counseling.

To promote dissemination and adoption of promising contraceptive counseling interventions to other populations and settings, interventions should be clearly and fully described and well documented in a manual or protocol that can be referenced or shared with others. Documentation of procedures also allows assessment of program fidelity (or examination of intervention implementation), which is important to consider when examining the impact of an intervention (e.g., is the intervention being implemented as conceptualized and consistently by different counselors?) Of the 22 studies in this review, only three[15,24,25] referenced a manual that was used to guide the counseling interventions, and only one[24] of the three discussed study findings in the context of intervention fidelity. In this RCT, intervention participants were to receive regular counseling and nine follow-up telephone calls over 12 months. Although the study found no evidence that the intervention impacted the outcomes of interest, the intervention had poor completion rates, with counselors

completing, on average, only 2.7 of nine follow-up telephone calls. To facilitate assessment of intervention implementation for prevention counseling, the HIV/STI counseling literature has proposed quality assurance measures, including the development of standard tools, standard training, frequent observation and feedback to counselors, and process evaluations.[55] Documentation of procedures is also needed to evaluate an intervention's intensity, which has been suggested as a critical predictor of an intervention's effectiveness in the HIV/STI counseling literature.[56,57] Although this systematic review described interventions by intensity, the definition developed for this review was crude because of incomplete intervention descriptions (e.g., lack of information on total amount of time to complete interventions).

Despite these limitations, the evidence base for contraceptive counseling also has several strengths. Half of the studies (11 of 22) in this review were RCTs,[16,21–25,28,29,33] and many used random number tables for group allocation,[16,22,24,25,29,31,32] concealed group allocation,[22,25,29,31] and used blinding.[16,22,28] Several studies followed participants for at least 12 months.[21,22,24,27,29,32,33,36] Other strengths included high participation rates,[23,27,29,37] high completion rates,[29,31,33,37] small differences in follow-up rates between study groups,[16,21,25,27,29,31,32] and study groups with similar baseline characteristics.[15,21,23–25,27,29,31–33] Two studies also used instruments with psychometric evidence of validity or reliability to measure constructs of interest,[15,36] and at least two measured pregnancy by using urine tests versus self-report.[19,27] Many studies[17–20,23–25,36] directly acknowledged training study staff, and two[20,21] reported using standardized provider tools to improve intervention implementation.

Additional articles[58–63] meeting the inclusion criteria for this systematic review have been published since our initial search of the literature. Three cross-sectional studies[59,61,63] did not provide details about the contraceptive counseling received by women. One cohort study[62] supported the importance of provider–patient interaction, personalized discussions, and addressing psychosocial determinants of contraceptive use behaviors during counseling. Another cohort study[60] found no increased uptake of long-acting reversible contraceptives among women receiving structured, comprehensive contraceptive counseling versus the standard of care in settings where financial barriers to contraception were removed, but uptake was high in both groups (>70%). Last, one RCT[58] provided mixed support on the usefulness of developing action plans and multiple client contacts.

Conclusions

Despite the diversity of interventions examined in this systematic review and the inability to compare the relative effectiveness of one approach versus another, promising counseling components emerged. Along with expert feedback and findings from two other complementary systematic reviews on the impact of education and reminder systems in family planning programs,[64,65] the information was used to develop recommendations for providing quality contraceptive counseling in the 2014 "Providing Quality Family Planning Services."[66] The evidence base on the impact of contraceptive counseling in clinical settings would be strengthened by improved documentation of counseling procedures; assessment of intervention implementation and fidelity to put study findings into context; and the

development and inclusion of more RCTs, studies conducted among general samples of women (e.g., from primary care settings), and studies with sample sizes that are large enough to detect important behavioral outcomes at least 12 months post-intervention. Continued efforts to develop and test effective contraceptive counseling interventions are needed and might consider incorporating promising components identified in this review and drawing on literature from other health fields.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Appendix. Supplementary data

Supplementary data associated with this article can be found at http://dx.doi.org/10.1016/j.amepre.2015.03.023.
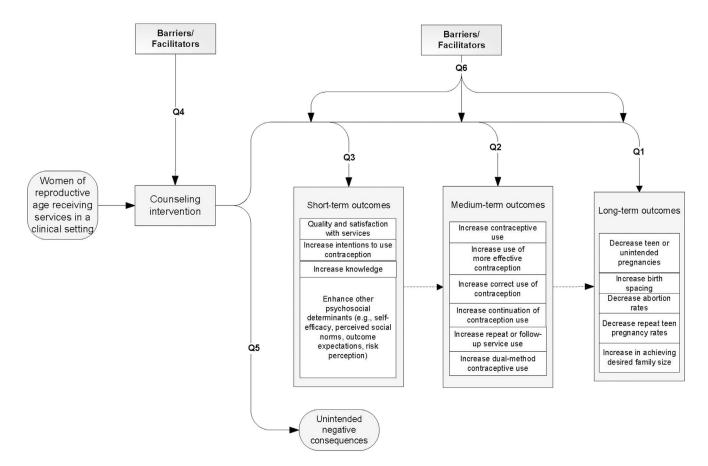
Figure 1.
Analytic framework for systematic review on the impact of contraceptive counseling in clinical settings.
Note: Numbered lines map to key questions (Q). Dashed lines show logical relationships between outcomes, but these relationships were not assessed in this systematic review.

Table 1

Key Questions for Systematic Review on Impact of Contraceptive Counseling in Clinical Settings

Key question no.	Question
1	Is there a relationship between counseling and improved long-term outcomes of family planning services (e.g., decreased teen or unintended pregnancies, increased birth spacing, decreased abortion rates, decreased repeat teen pregnancy rates, or unintended pregnancy rates)?
2	Is there a relationship between counseling and improved medium-term outcomes of family planning services (e.g., increased contraceptive use, increased use of more effective contraception, increased correct use of contraception, increased continuation of contraception use, increased repeat or follow-up service use)?
3	Is there a relationship between counseling and improved short-term outcomes of family planning services (e.g., improved quality and satisfaction with service, strengthened social norms, improved intentions to use contraception, increased knowledge, enhanced other psychosocial determinants of contraceptive use)?
4	What are the barriers and facilitators for clinics to offering counseling in the family planning setting?
5	Are there any unintended negative consequences associated with counseling when used in the family planning setting?
6	What are the barriers and facilitators for clients to achieving positive outcomes after receiving counseling in the family planning setting?

Note: Questions are put into context by the analytic framework presented in Figure 1.

Table 2

Summary of Impact of Contraceptive Counseling in Clinical Settings for Adolescents

Reference	Quality	Intensity	Outcomes									Total outcomes with positive impact for study[†]
			Long-term		Medium-term					Short-term		
			Decreased teen pregnancy rate	Increased contraceptive use	Increased use of more effective contraceptives	Increased correct use of contraceptives	Increased continuation of contraceptive use	Increased repeat and follow-up service use	Increased quality and satisfaction with service	Increased knowledge	Enhanced other psychosocial determinants of contraceptive use	
Berger (1987)[17]	Level II-3; high risk for bias	Moderate	NA	↑	NA	NA	NA	NA	NA	NA	NA	1/1
Brindis (2005)[19]	Level II-3; high risk for bias	Moderate	↑	↑	↑	NA	NA	↑	NA	NA	NA	4/4
Cowley (2002)[20]	Level II-3; high risk for bias	Low	NA	*	*	NA	NA	NA	NA	NA	NA	0/0
Hanna (1993)[23]	Level I; moderate risk for bias	Low	NA	NA	NA	↑	NA	NA	NA	NA	↔	1/2
Kirby (2010)[24]	Level I; moderate risk for bias	Moderate	↔	↔	NA	↔	NA	↔	↔	NA	NA	0/5
Winter (1991)[36]	Level II-1; high risk for bias	Moderate	↔	↑	NA	NA	↑	NA	↔	↑	↑	4/6
Total studies with positive impact[†]			1/3	3/5	1/2	1/2	1/1	1/2	0/2	1/1	1/2	

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 frequently than weekly); or high (intervention took place weekly).

↑Statistically significant positive impact; ↓statistically significant negative impact; ↔ no evidence of a statistically significant impact.

*
No statistical testing conducted, but improvement observed.

†
Statistically significant.

NA, not assessed; UIP, unintended pregnancy.

Table 3

Summary of Impact of Contraceptive Counseling in Clinical Settings for Adults or Mixed Populations

Reference	Quality	Intensity	Outcomes										Total outcomes with positive impact for study†
			Long-term	Medium-term							Short-term		
			Decreased teen or UIP rate	Increased contraceptive use	Increased use of more effective contraceptives	Increased correct use of contraceptives	Increased continuation of contraceptive use	Increased repeat or follow-up service use	Increased dual-method contraceptive use	Increased quality and satisfaction with service	Increased knowledge	Enhanced other psychosocial determinants of contraceptive use	
Adams-Skinner (2009)[15]	Level II-2; high risk for bias	Moderate	NA	↑/↔	NA	NA	NA	NA	NA	NA	NA	NA	1/1
Bender (2004)[16]	Level I; moderate risk for bias	Moderate	NA	↔	↔	NA	NA	NA	NA	NA	NA	NA	0/2
Boise (2003)[18]	Level II-3; high risk for bias	Moderate	NA	*	NA	*	NA	NA	NA	NA	NA	NA	0/0
Custo (1987)[21]	Level I; moderate risk for bias	Low	↔	NA	↑	NA	NA	NA	NA	NA	NA	NA	1/2
Gilliam (2004)[22]	Level I; moderate risk for bias	Low	↔	NA	NA	NA	↔	NA	NA	NA	↑	NA	1/3
Langston (2010)[25]	Level I; moderate risk for bias	Low	NA	NA	↔	NA	↔	NA	NA	NA	NA	NA	0/2
Lee (2011)[26]	Level II-3; high risk for bias	Low	NA	↑	NA	NA	NA	NA	NA	NA	NA	NA	1/1
Namerow (1989)[27]	Level II-1; high risk for bias	Low	↔	NA	NA	↑	NA	↔	NA	NA	NA	NA	1/3
Nobili (2007)[28]	Level I; moderate risk for bias	Low	NA	NA	↑	NA	NA	NA	NA	NA	↑	↑	3/3
Petersen (2007)[29,30]	Level I; moderate risk for bias	Low	↔	NA	↔	↔	NA	NA	NA	NA	NA	NA	0/2
Proctor (2006)[31]	Level I; high risk for bias	Low	NA	NA	↔	NA	NA	NA	NA	↑	NA	NA	1/2
Schunmann (2006)[32]	Level I; moderate risk for bias	Low	↔	↔	↑	NA	↔	NA	NA	NA	NA	NA	1/4
Shlay (2003)[33]	Level I; moderate risk for bias	Low	↔	NA	↑/↔	NA	NA	↔	↑/↔	NA	NA	NA	2/4
Todres (1990)[34]	Level II-3; high risk for bias	Low	NA	NA	NA	NA	NA	NA	NA	NA	↑	NA	1/1
Weisman (2002)[35]	Level II-3; high risk for bias	NR	NA	↑	NA	NA	NA	NA	NA	↑	NA	↑/↔	3/3
Yassin (2005)[37]	Level II-3; high risk for bias	Low	NA	*	*	NA	NA	NA	NA	NA	NA	NA	0/0
Total studies with positive impact †			0/6	4/7	4/8	1/3	0/3	0/2	1/1	2/2	3/3	2/2	

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 frequently than weekly); or high (intervention took place weekly).

↑Statistically significant positive effect; ↓statistically significant negative effect; ↔ no evidence of a statistically significant effect.

*
No statistical testing conducted, but improvement observed.

†
Statistically significant.

NA, not assessed; NR, not reported; UIP, unintended pregnancy.