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Computer-Assisted Motivational Interviewing Intervention to Facilitate Teen Pregnancy Prevention and Fitness Behavior Changes: A Randomized Trial for Young Men

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Abstract

Purpose: Despite recent declines, teen unintended pregnancy and sexually transmitted infections in the United States remain at levels higher than comparable nations. Initiatives to prevent teen pregnancy have focused primarily on female adolescents; how to effectively engage young men to reduce their risk of fathering a teen pregnancy has not been well studied. We proposed to adapt an innovative computer-assisted motivational interviewing (CAMI) intervention, originally designed and tested with young women, for use with young men, aged 15–24 years, to reduce their risk of fathering a teen pregnancy. This manuscript describes the design of a CAMI intervention for young men aimed at preventing teen pregnancy and improving fitness.

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Trial Status

The formative research phase of the study is nearly complete: individual interviews were completed and analyzed in the second half of 2016, and the study's Community Advisory Board began meeting monthly in late 2016 and will complete their 1-year term in fall of 2017. The mobile app for participants to enter behavioral data and receive feedback has been constructed and will soon enter beta testing. Recruitment for the randomized controlled trial is anticipated to start in late 2017 and end in 2019. The trial will be registered on clinicaltrials.gov.

Methods: This randomized controlled trial will recruit 945 sexually active young men between the ages of 15 and 24 years from three health centers in New York City. Participants will be assigned by permuted block randomization to two study arms: one aimed at reducing involvement in unintended teen pregnancy (CAMI-teen pregnancy prevention) and the other at improving overall fitness (CAMI-Fitness). Except for topic, both intervention arms will provide four sessions of Motivational Interviewing coaching and use a mobile app to track behavior and set goals. We will assess young men's sexual and reproductive health behaviors and fitness at baseline, 12, 24, 36, and 64 weeks using a mobile device app created for the study.

Results: Pending ongoing study.

Conclusions: Results from the study are expected to enhance our understanding of the efficacy of CAMI to enhance young men's reproductive health and fitness behaviors.

Summary

This article describes the methodology of a proposed innovative CAMI intervention to reduce young men's risk of fathering a teen pregnancy.

Keywords

Adolescent; Male; Young adult; Teen pregnancy prevention; Sexual behavior; Randomized controlled trial; Fitness; Motivational interviewing

Most teen pregnancies (75%) are unintended [1]. Initiatives aimed at preventing teen pregnancy have focused primarily on female adolescents. Actively engaging young men in teen pregnancy prevention interventions may further reduce unintended pregnancies and births and is a necessary and central component to promote further behavior change.

Young men, aged 15–24 years, father most of the children born to teen mothers [2,3]. Men aged 20–24 years father a higher proportion of children born to teen mothers than men aged 19 years and younger [4]. The rate of teen fatherhood in 2010 was estimated at 16.1 births per 1,000 men aged 15–19 years [3]. In 2002,15% of fathers aged 15–44 years reported having their first child before the age of 20 years, and teen fatherhood rates were highest among minority teens [5].

In addition to using male condoms, men can prevent unintended pregnancy through contraception-related communication between partners, joint responsibility, and decision-making. Young men's desire for pregnancy prevention, knowledge and attitudes about contraceptive methods (including condoms), and supporting partners' use of moderately or highly effective reversible contraceptive methods (MERC/HERC) are influences that impact higher contraceptive use among women, particularly contraceptive continuation [6,7].

Few interventions have been designed or shown to be effective specifically for young men in reducing teen pregnancy. Most of the interventions shown to be effective have included both male and female participants; only one intervention was designed specifically for young men [8], and most were designed as HIV/sexually transmitted infection (STI) prevention interventions. Interventions often do not address shared responsibility of contraceptive decision-making or on utilization of sexual and reproductive health services. Rigorous

evaluations of interventions that focus on male-specific risk and protective factors for teen pregnancy have not been reported in the peer-reviewed literature.

Counseling and feedback based on motivational interviewing (MI) have demonstrated greater success than standard didactic counseling in several domains of behavior change [9–13]. MI has been shown to decrease teen pregnancy risk in young women [14–17]. The effectiveness of MI to alter young men's sexual and contraceptive behaviors has not been rigorously evaluated. We propose to adapt, implement, and rigorously evaluate an innovative computer-assisted motivational interviewing (CAMI) intervention, originally designed and tested with young women, for use with young men, aged 15–24 years, to reduce their risk of fathering a teen pregnancy. The primary objective is to evaluate the efficacy of the CAMI-teen pregnancy prevention (CAMI-TPP) intervention as compared with a CAMI-Fitness control in reducing sexual behaviors that increase the risks of fathering an unintended teen pregnancy, primarily through increasing condom use and female partner use of MERC/HERC. This manuscript describes the design of a CAMI intervention for young men aimed at preventing teen pregnancy and improving fitness.

Methods

Design overview

Our design employs a randomized controlled trial to evaluate a CAMI-TPP intervention compared with a CAMI-Fitness intervention. Both arms will receive four coaching sessions with an MI coach over 12 weeks and will be asked to track and set goals for their health behaviors and complete weekly check-ins and periodic assessments in a mobile application. Only the topics of the intervention will differ in the randomized groups' two arms: teen pregnancy prevention (CAMI-TPP) versus a CAMI-Fitness aimed at tobacco avoidance, healthy diet, and physical activity. Young men, aged 15–24 years, will be recruited from three New York City health centers associated with New York-Presbyterian Hospital and Columbia University Medical Center. The Institutional Review Boards at Columbia University Medical Center and the Centers for Disease Control and Prevention will have approved this study and all participants will provide written informed consent. Parental consent for participants who are minors will be waived according to guidance by New York state law for providing confidential services to minors.

Figure 1 represents the flow of participants in both randomization arms across study steps from screening through follow-up. Figure 2 (logic model) illustrates the theory of change. The logic model elucidates the causal pathway through which the planned activities and outputs lead to short-term outcomes (therapeutic alliance established; participant commits to change by creating a SAFE plan) and medium-term outcomes (increased commitment to avoid pregnancy now; active role in contraceptive decision-making; increased knowledge about and behavioral intention to use condoms and MERC/HERC; discussing MERC/HERC with partner; and intention to seek medical care) that lead to the primary contraceptive use and STI testing outcomes.

Participants

We plan to recruit and enroll 945 men, aged 15–24 years, who have been sexually active with female partners from three health center sites in New York City.

Sites include two of New York-Presbyterian Hospital's school-based health centers (SBHCs) at George Washington Educational Campus in Washington Heights and John F. Kennedy campus in the Bronx and the Young Men's Clinic (YMC) in Washington Heights. The site's populations are predominantly Hispanic and Black with the majority on Medicaid managed care insurance.

Inclusion criteria: (1) male between the ages of 15 and 24 years at the time of enrollment; (2) has had sexual intercourse in the past 90 days with a female partner; (3) is able to sign informed consent or assent (parental consent will be waived for those under age 18 years); (4) is able to participate for 15 months; and (5) owns a smartphone (iPhone or Android); (5) is able to read and/or speak in English or Spanish. Participants will be asked to choose their preferred language.

Exclusion criteria: (1) age under 15 years or older than 24 years; (2) living in a group or foster home; (3) trying to get a female partner pregnant (e.g., desires fatherhood in the next 15 months); (4) known sterility; (5) unable to be contacted over the study period; and (6) engages in exclusively same-gender sexual behavior.

Recruitment and enrollment

Multiple strategies will be used to reach eligible candidates, including waiting room recruitment by the MI coaches at the SBHCs and YMC, posters and palm cards, and referral by YMC, SBHC, and school staff. In the case of gatekeeper referral, interested young men will be either immediately referred to an MI coach present at the site for eligibility screening or provided a coach's contact information. If the potential participant meets baseline criteria, they will then be contacted by the project coordinator.

To supplement waiting room recruitment, a study Web site will be created with a description of the project, answers to common questions, and a link to contact the project coordinator for more information. The URL to the Web site will be included on all other recruitment materials, including posters and palm cards, which will make it easy for gatekeepers such as clinic staff and student health educators to refer eligible candidates to the study.

The project coordinator will conduct a brief screen by phone with interested candidates to assess and finalize eligibility. With the assistance of the project coordinator, eligible and interested candidates will download the mobile application (app) onto their smartphones and will complete and sign the informed consent on the app. The signed consent will be saved to the participant's app, where they may view it at any time, as well as their profile on the online portal.

Anticipating the potential for loss to follow-up, participants will be asked at the time of enrollment to provide contact information for themselves, including phone number(s) and

email address(es), as well as the name, phone number, and email address of a close contact who would know how to get in touch with them.

Randomization

At the time of enrollment, participants will be assigned by a permuted block randomization algorithm to one of two study arms: one aimed at pregnancy prevention (CAMI-TPP) and the other at improving fitness (CAMI-Fitness).

Interventions

Adaptation and piloting.—A qualitative approach modified the original CAMI intervention designed for young women [14–16] for use with young men. Individual interviews with 27 men, aged 15–24 years, were conducted to assess their opinions on the content and delivery of a mobile app–assisted health intervention. There were three sets of interviews, each exploring a different component of the formative research: (1) coaching sessions and communication with the coach; (2) feedback format, timing and style from the app; and (3) role of the coach and impressions of a value card sort activity. [18] In addition, a Community Advisory Board of young men from the study population began meeting monthly in late 2016 and provided feedback which informed the design of many aspects of the study, including privacy and confidentiality, wording and length of surveys, recruitment strategies and materials, and participant engagement and retention. The adapted intervention will be pilot tested with nine participants to ensure functionality and feasibility, particularly of the mobile app and the coaching intervention.

Interventions: CAMI-TPP and CAMI-Fitness.—Participants in the CAMI-TPP arm will receive four 30- to 45-minute sessions of one-on-one telephone MI coaching (at enrollment or within the first week of enrollment, at 2–4 weeks, at 8 weeks, and at 12 weeks). The sessions will be guided by an app-generated, personalized feedback aimed at increasing condom use, supporting female partners in contraceptive use, and obtaining reproductive health services and STI testing. Each participant will be offered, with permission, clear advice to avoid being involved in a pregnancy until he desires it and avoid getting STI's by using condoms correctly and consistently, by limiting the number of sexual partners, and by supporting his female sexual partners in using MERCs or HERCs, and getting STI testing. Referral for a reproductive health clinic will be offered and encouraged.

Participants in the CAMI-Fitness arm will also receive four 30- to 45-minute sessions of one-on-one telephone MI coaching (at enrollment or within the first week of enrollment, at 2–4 weeks, at 8 weeks, and at 12 weeks.) The sessions will be guided by an app-generated, personalized feedback aimed at healthy diet, tobacco avoidance, and physical activity. Each participant will be offered, with permission, clear advice to avoid tobacco, maintain a healthy weight/body mass index, eat healthily, and participate in physical activity. With permission, the coach will offer or direct the participant to detailed information about tobacco avoidance, healthy diet, and physical activity according to the young man's needs and requests. Referral for an athletic training visit will be offered and encouraged.

The two interventions are identical in length and timing but vary in the behavioral target (pregnancy prevention vs. fitness). All coaching sessions will be conducted by phone or video call. Formative research has reaffirmed that most young men in our study population will feel comfortable talking with their coaches by phone rather than in person and may find it more convenient than having to come in for an in-person meeting.

CAMI coaching sessions.—CAMI coaching sessions for topics in each intervention arm will embody the spirit of MI in every session (collaboration, acceptance, compassion, and evocation). Coaches will utilize MI processes (engaging, focusing, evoking, and planning) and core MI communication skills (open-ended questions, affirmations, reflections, and summaries).

Coaches will use MI style with each participant to collaboratively identify areas for behavior change and, with permission, develop a specific, tailored plan with each participant to consider and implement. The coach will use an agenda-mapping chart to determine what specific changes each participant wishes to make related to the intervention topic. Using a ruler scale, the coach will assess and explore each participant's perceived importance of making specific intervention-related behavior changes as well as his confidence in making those changes. The coach will also use a ruler scale to assess and explore participants' readiness to make changes. Finally, if the participant expresses readiness to create a behavior change plan, the coach will work with him to create a plan outlining specific steps toward change. The plan will identify each participant's personal reasons for change(s), facilitating factors and barriers to the plan, and potential solutions to barriers.

A key component of any Ml-based intervention is for the coach to support each young man's autonomy by explicitly stating that it is up to him, not the coach, to make decisions regarding behavior change. Coaches will lead the participant in a directed, empathic discussion that includes (1) reviewing intervention-specific behavioral data that the young man entered into his mobile device app (if he agrees to share his data) and (2) discussing future goals and values related to education, career, and intervention-specific goals such as relationship and parenting goals or fitness goals, depending on intervention group. The coach will support each young man's decision to make (or consider making) change.

The CAMI protocol scripts for all four MI sessions in both intervention arms are available on request and these provide detailed examples of the types of behavioral changes participants could make and could discuss with the health coaches. CAMI conversations, when a participant is not in a current or stable relationship, might include open-ended questions and reflections about pregnancy and STI prevention goals with new or causal partners (and how this might be different from current or stable relationships), when and how to bring up the topic of pregnancy and STI prevention with new or casual sexual partners, potential barriers to keeping oneself safe from STIs and being involved in an unintended pregnancy with a new or casual sexual partner as well as potential solutions to these barriers. Coaches will also affirm participants' willingness to think ahead about these potential situations and protect themselves as well as affirm their resourcefulness in generating solutions to potential barriers and challenges to consistent and effective condom

use and other self-protective behaviors to avoid unintended pregnancy involvement and STI acquisition.

Computer assistance using a mobile application.—The app will provide each participant with feedback specific to his intervention arm and tailored to the behavioral data he entered for checkins and periodic assessments. CAMI-TPP will provide feedback to each participant on his personal risk for being involved in an unintended pregnancy and getting an STI. CAMI-Fitness will provide feedback to each participant on his tobacco use, body mass index, eating, and physical activity.

Treatment quality and fidelity.—To promote and assess treatment integrity, all CAMI coaching sessions will be audio-recorded and reviewed weekly by the CAMI supervisor (M.A.G.), who will use a CAMI adherence checklist developed for the study to assess adherence to CAMI session content and process (quality MI microskills) and use the Motivational lnterviewing Treatment Integrity scale or MITI 3.1.1 to assess and give feedback to coaches about the quality of MI delivered at each session. Coaches will be laypeople hired from the community who have a minimum of a high school diploma and who are bilingual. They will have completed a written Helpful Responses Questionairre with six scenarios and separately will have completed a 10-minute audio recording that will be coded using the MITI 3.1.1. Laypeople will be hired and trained in MI for three reasons: (1) cost of staff; (2) better rapport between the participants and the coaches since coaches are not seen as “experts” but rather as peer helpers to participants in determining what types of behavior changes to choose and how to implement and build on those changes over time; and (3) the ease to train laypeople in MI than retrain professionals or paraprofessionals who may have prior, more didactic interactions with participants or clients in which they are seen and see themselves as “experts.” Before enrolling participants, coaches will undergo rigorous MI training and operate under significant oversight to ensure fidelity to the principles of MI. Each coach will receive individualized feedback and coaching by the supervisor (M.A.G.) who will review every audio-recorded practice session until the coaches are certified to competently conduct CAMI coaching based on the MITI 3.1.1 coding. After enrollment and MI coaching for participants has begun, coaches will receive personal feedback and coaching for their first 10 audio-recorded CAMI coaching sessions and overtime will be provided with ongoing written feedback and coaching for every other to every third audio-recorded session. To ensure fidelity, an independently contracted reviewer team will code at least 10% of all CAMI sessions using the MITI 4.2. Any coach who falls below acceptable levels of proficiency in MI will be identified and retrained by the supervisor until able to demonstrate competency and skills.

Retention

Multiple strategies will be used to maximize participant engagement with sessions and surveys. Participants will choose times for their coaching sessions that are convenient and fit into their schedules and can choose to have their sessions by phone or video call (e.g., FaceTime). The app will send notifications for upcoming coaching sessions and for surveys the participant needs to complete. The online portal will allow coaches to see whether their participants have completed their assigned surveys and to send personalized reminder

notifications to encourage completion. Coaches will be able to reach out to participants through the app, by text, by email, and if necessary through their designated contact person. If a participant loses access to their phone, they can contact their coach by email or the project coordinator through the study Web site.

Biweekly check-ins.—To promote engagement and minimize loss of data due to attrition, all participants in both arms will be asked to complete a biweekly check-in using the app platform to track a narrow set of sexual behavior and fitness behaviors (tobacco, marijuana, and alcohol use, diet, and physical activity) over the previous 7 days. Measures for the biweekly check-ins will use the same or very similar question phrasing as the assessment items, but using 7-day time periods, as summarized in Table 1. Check-ins are designed to be completed in fewer than 5 minutes.

Measures

Assessments.—Participants will complete assessments at baseline and weeks 12, 24, 36, and 64. Participants will use the app platform to complete an assessment to collect data on socio-demographic characteristics, relationship status and pregnancy intentions, reproductive and sexual health history and health care utilization, contraceptive knowledge and attitudes, sexual behavior, and physical fitness (eating, smoking, alcohol consumption, and physical activity), as summarized in Table 1. Assessments will use phrasing from items on existing national surveys that have been used specifically with young men aged 15–24 years [19–24]. Measures on tobacco use, eating, and physical activity will rely on survey items from the National Youth Physical Activity and Nutrition Survey [25]. Sexual behavior measures will include required performance measure items developed by the Office of Adolescent Health [26], to allow for coordinated outcome evaluations across funded interventions [26]. Validated scales will be used to measure key mediating variables including intention to seek medical care with the Action/Intention subscale of the Medical Help-Seeking scale [27–29] and therapeutic alliance (using the revised Helping Alliance Questionnaire [30]). Assessments will require 30–35 minutes to complete. Participants in both arms will complete the same assessments at each time period.

Outcomes

Primary outcome.—The primary outcome of interest is engaging in sexual intercourse without condom use at last sex during the last 3 months (“risky sex”), an outcome derived from two sexual behavior measures: having any sexual intercourse with a female partner in the last 3 months (yes/no) and condom use at last sexual intercourse. This primary outcome will include all participants, regardless of their frequency of sexual activity following enrollment [31]. A participant who reports no acts of sexual intercourse during the 3-month report period will be coded as not having the primary outcome. A participant who reports that a condom was not used, or that he is unsure if a condom was used at last sex, will be coded as having the primary outcome. A participant who reports that he used a condom at the last act of sexual intercourse will be coded as not having risky sex.

Secondary outcomes.—Secondary outcomes relating to behaviors that increase risk of being involved in a teen pregnancy (specific aim 2) include the use of a MERC or HERC,

defined as a method with <10% failure rate over 12 months of typical use [32], by female sexual partners at last intercourse (asked separately for each sexual partner in last 3 months); number of acts of sexual intercourse in the assessment period that were unprotected by condoms; number of acts of sexual intercourse in the assessment period that were unprotected by partner use of MERC/ HERC; consistency of condom use; number of times each week participant had sexual intercourse without using a condom; and number of times each week participant had sexual intercourse without partner using MERC/HERC. Secondary outcomes relating to behaviors that increase risk of STIs and HIV (specific aim 3) include having a visit for sexual or reproductive health care since the last assessment period; receiving a test for gonorrhea, chlamydia, and/or HIV since the last assessment period. Physical fitness outcomes to be compared in both groups include physical activity (any, vigorous, or strength building); consumption of various food groups and beverages; cigarette smoking; marijuana use; alcohol use; and binge drinking.

Mediating variables.—Several mediating pathways will be assessed, including therapeutic alliance (a key theoretical component of the logic model); knowledge about condoms and MERC/HERC methods; communication with partners and health care providers about condoms and MERC/HERC; attitudes around male involvement in contraceptive decision-making; and intention to seek medical care.

Moderating variables.—Sociodemographic and sexual history variables that have been identified a priori as potential moderating factors that may influence the extent to which the intervention has an impact on the primary, secondary, and mediating outcomes include (as listed in Table 1) sociodemographic variables including age and race/ethnicity; access to health care; sexual partnerships; pregnancy intentions; past involvement in pregnancy; STI history; and perceived fertility.

Sample size and statistical power

Using conservative and data-driven assumptions about clinic population size, eligibility, participation, and evidence-informed assumptions about refusals, attrition, and baseline outcome levels based on clinical-administrative data from all recruitment sites and prior research in the source population [33], we anticipate screening 7,284 potential participants, of whom 2,912 will be eligible, 932 will be enrolled, and 756 (80%, or 378 in each arm) will be retained at 6 months. Estimated effect size was informed by a similar pregnancy prevention intervention among alternative school students, using the effect size observed at 6 months in the All4You! Trial [34]. With this sample size, the study has 80% power (with 95% confidence) to detect significant differences (odds ratio = 1.52) for the whole sample at 6 months based on a primary outcome of having unprotected sex at last intercourse (“risky sex”). Assuming that 25% of the variance in the primary outcome is explained by covariates, the minimum detectable impact (at 80% power and 95% confidence) is nine percentage points (estimating 52% in the control group have the “risky sex” outcome, compared with 43% or lower in the intervention group).

Statistical analyses

We will compute initial baseline univariable and multivariable analyses to assess baseline equivalency between the arms and to examine possible threats to internal and external validity created by selective or differential loss to follow-up. Outcome analyses will compare each primary, secondary, and mediating outcome between the CAMI-TPP and CAMI-Fitness arms at each assessment time point (12, 24, 36, and 64 weeks after baseline). Analyses will test a priori hypotheses (with alpha set at .05) that participants in the CAMI-TPP are significantly more likely to engage in behaviors that reduce risk of being involved in a teen pregnancy (specifically, are less likely to engage in risky sex, the primary outcome); engage in behaviors that reduce the risk of STIs and HIV; have higher knowledge about contraception; and have more positive attitudes about contraceptive use and male involvement in contraception. Moderating variables will be entered into models using interaction terms. Outcome analyses will assume intention-to-treat, maintaining original randomization assignment. To facilitate these analyses, weekly check-in data will be used to impute missing outcome data from assessments if needed. We will use nested repeated measures design, with individuals assigned to condition within recruitment site, and measured over time. To control for cluster and repeated measures effects, recruitment site and time will be treated as a random effect with treatment condition by time as the main independent measure of interest in any repeated measures analysis. All statistical testing will adjust for multiple comparisons using the Benjamini and Hochberg approach [35].

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IMPLICATIONS AND CONTRIBUTION

Methods for reducing teen pregnancy risk for young men have not been well studied. This randomized controlled trial will rigorously evaluate a computer-assisted motivational interviewing intervention for young men, aged 15–24 years, aimed at teen pregnancy prevention and fitness behaviors.

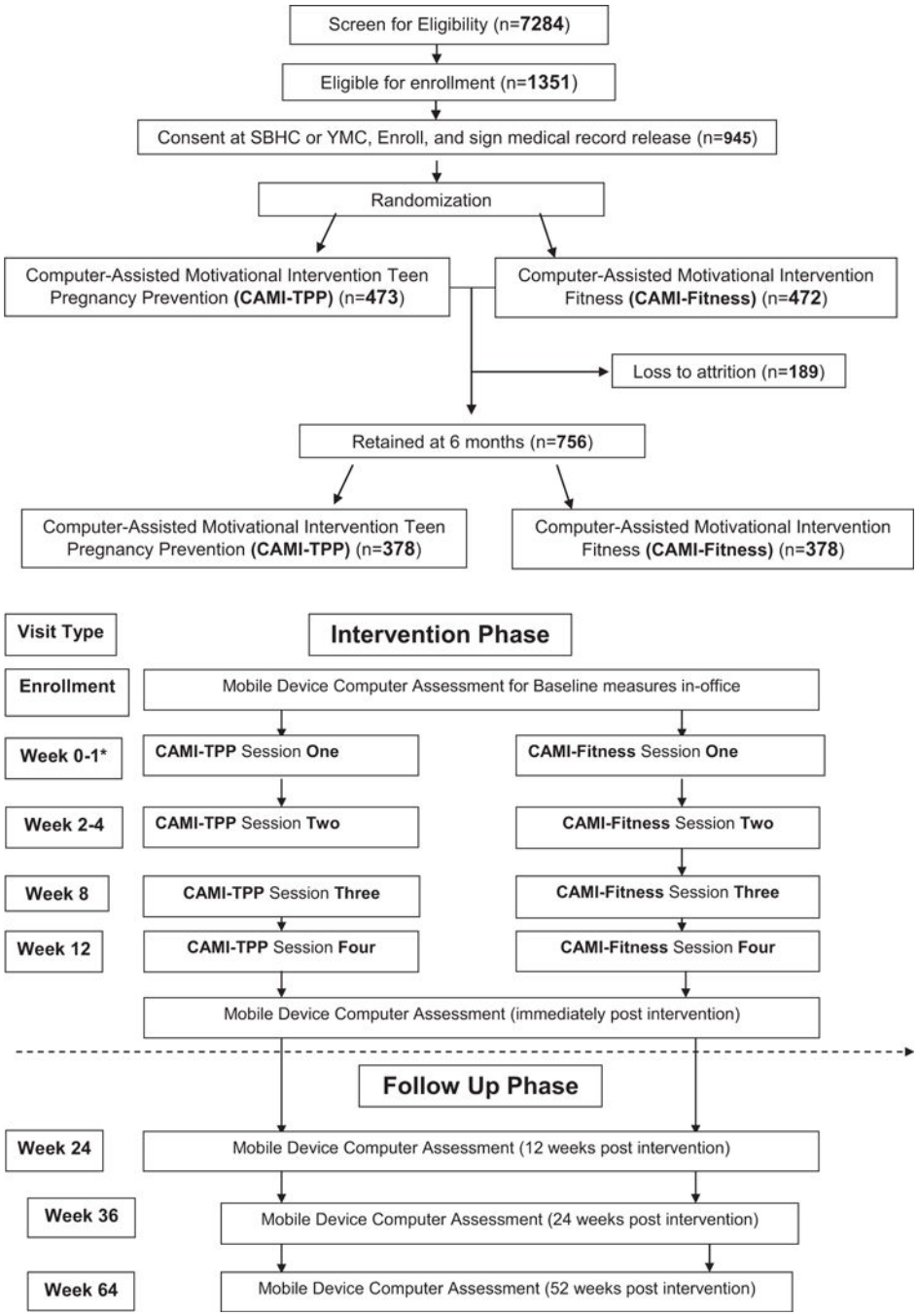

Figure 1.

Randomized efficacy study flow chart; *beginning at week 1, participants will also be asked to complete brief weekly in-app check-in questionnaires.

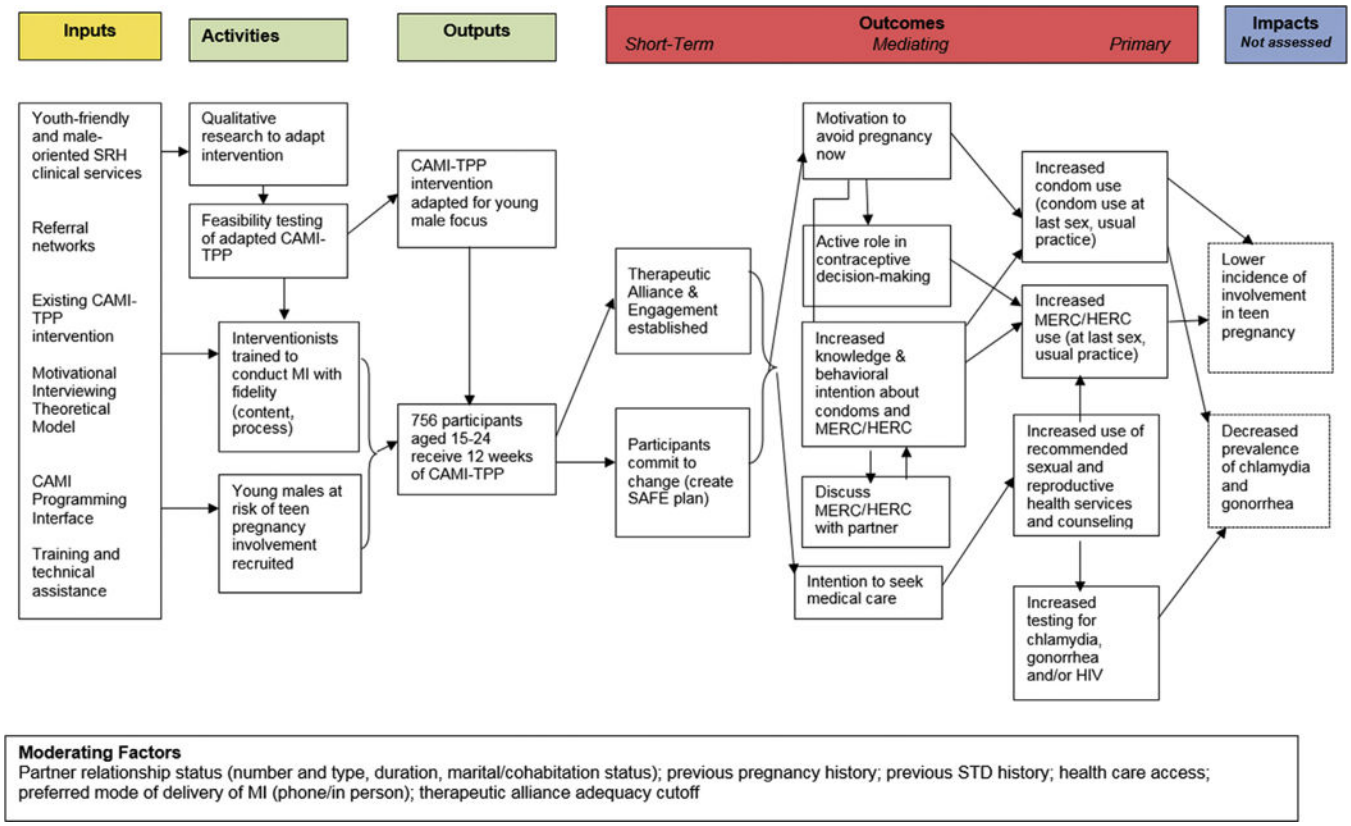

Figure 2.

Logic model. This logic model illustrates the Theory of Change of the proposed study. SRH, sexual and reproductive health.

Table 1

Data collection measures, item source, relationship to specific aims and analytic plan, and data collection timeline by intervention week

Measure	Item source	Biweekly check-in	Baseline	12	24	36	64
Primary outcome: risky sex (had sexual intercourse with a female partner in last 3 months, with no condom used at last sexual encounter)							
Had sexual intercourse with female partner at least once in last 3 months ("Please think about the past 3 months. In the past 3 months, have you had sexual intercourse, even once? By sexual intercourse, we mean a male putting his penis into a female's vagina.")	Office of Adolescent Health (OAH) performance measures [1]		X[a]	X	X	X	X
Condom use at last sex (The last time you had sexual intercourse, did you, yourself, use any methods to prevent pregnancy or sexually transmitted disease? That time, what methods did you, yourself, use to prevent pregnancy or sexually transmitted disease? Response options: condom or rubber; withdrawal or pulling out; vasectomy ormale sterilization[a]; something else; not sure/do not know)	NSFG–male questionnaire [2]		X	X	X	X	X
Secondary outcomes							
Specific aim 2: outcomes related to risk of involvement in teen pregnancy through condom and MERC/HERC use							
Number of times had sexual intercourse with female partner in last 3 months; number of times without using condom; without partner using any MERC/HERC method	OAH performance measures		X	X	X	X	X
Number of times had sexual intercourse with female partner in last 7 days; number of times without using condom; without partner using any MERC/HERC method	OAH performance measures	X					
Consistent condom use in usual practice	NSFG		X	X	X	X	X
Partner used MERC/HERC at last sexual intercourse (asked separately for each sexual partner in last 3 months)	NSFG		X	X	X	X	X
Specific aim 3: outcomes related to risk of sexually transmitted infections and HIV							
Received reproductive health care since last assessment; discussed condoms, birth control with health care provider	YAHCS [3]		X	X	X	X	X
Received GC/CT and/or HIV test since last assessment	YAHCS		X	X	X	X	X
Physical fitness outcomes							
Number of days in last 7 days: engaged in 60 or more minutes of any physical activity; 20 or more minutes of vigorous activity; strength-building exercise	NYPANS [4]	X	X	X	X	X	X
Hours of sedentary time (playing video or computer games; watching videos or movies) in last 7 days	NYPANS		X	X	X	X	X
Number of days in last 7 days consumed fruit, 100% fruit juice, vegetables (green salad, carrots, potatoes, and other vegetables), fast food, pizza, french fries, sugar-sweetened beverages (tea or coffee with sugar, sports drinks, energy drinks, soda/pop), diet soda, water, milk	NYPANS		X	X	X	X	X
Days smoked and average daily number of cigarettes smoked in last 30 days[b]	YRBS [5]	X	X	X	X	X	X
Days used marijuana in last 30 days[b]	YRBS	X	X	X	X	X	X
Ever made smoking quit attempt	YRBS		X	X	X	X	X

Measure	Item source	Biweekly check-in	Baseline	12	24	36	64
Days consumed alcohol and largest number of drinks consumed in last 30 days[c]	YRBS		X	X	X	X	X
Binge drinking in last 30 days (5 or more drinks in a couple of hours)	YRBS		X	X	X	X	X
Mediating outcomes							
Specific aims 2 and 3							
Therapeutic alliance established	Revised Helping Alliance Questionnaire (HAq-II) [6]		X	X			
Specific aim 2							
Knowledge and attitudes about contraception: ever heard of MERC/HERC methods	NSRCK [7]		X	X	X	X	X
Knowledge and attitudes about condoms and condom use	NSRCK; OAH performance measures		X	X	X	X	X
Attitudes about male involvement in contraceptive decision-making	NSRCK; National Couples Survey [8]		X	X	X	X	X
Communication with partner about MERC/HERC	NSFG; National Couples Survey		X	X	X	X	X
Specific aim 3							
Communication with health care provider about condoms; MERC/HERC	YACHS		X	X	X	X	X
Attitudes and intentions regarding medical care	Medical Help-Seeking Scale, Action/ Intention subscale [9–11]		X	X	X	X	X
Behavioral intentions to use condoms; for partner to use MERC/HERC at next sexual intercourse	OAH performance measures		X	X	X	X	X
Moderating variables							
Sociodemographics: education level (current/attained); race (nonmutually exclusive categories); Hispanic ethnicity; primary language spoken at home	OAH performance measures		X				
Current housing situation; special populations status (homeless or living in foster care)	Add Health [12]		X				
Access to health care (other than recruitment site)	YAHCS	X		X	X	X	X
Number of female sexual intercourse partners in last 3 months; relationship status of each partner	Add Health	X		X	X	X	X
Pregnancy intentions (including ambivalence) own and jointly with current partner (if applicable)	NSRCK	X		X	X	X	X
Past involvement in pregnancy; fatherhood status	OAH performance measures; NSRCK	X		X	X	X	X
Any diagnosis of STI (gonorrhea, chlamydia, herpes, or syphilis) in last 12 months	NSFG	X		X	X	X	X
Perceived fertility–likelihood of getting a woman pregnant when want to	NSRCK	X		X	X	X	X

Add Health = National Longitudinal Study of Adolescent to Adult Health; GC/CT = gonorrhea or chlamydia; HERC/MERC = highly effective reversible contraception/ moderately effective reversible contraception; NSFG = National Survey of Family Growth, 2011–2013 Cycle Male Questionnaire; NSRCK = National Survey of Reproductive and Contraceptive Knowledge; NYPANS = National Youth Physical Activity and Nutrition Survey; YAHCS = Young Adult Health Care Survey; YRBS = Youth Risk Behavior Survey.

[a] Males who are not sexually active or who report vasectomy at baseline are not eligible.

[b] Weekly check-in will ask about behavior in last 7 days only.

[c] Alcohol consumption variables will be analyzed as mediating variables as well.