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Motivating Adolescents to practice safer sex:

The effects of sexual self-schema matching and planning

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Abstract

The effectiveness of an intervention to promote condom use among adolescents was studied in a sample of 398 participants aged 12 to 19 years. Pilot studies showed that adolescents' sexual self-schemata were associated with distinct motives to engage in sex, and that messages to promote condom use were perceived as more relevant and persuasive when their arguments matched the motives which were related to participants' sexual self-schema. We hypothesized that providing participants with self-selected action and coping plans, and/or a persuasive message that was matched to participants' sexual self-schema would increase their intention to use condoms and prepare for condom use. Univariate analyses, controlling for socio-demographic factors, showed that sexual self-schema matching did not increase adolescents' preparatory or behavioral intentions. Providing participants with action and coping plans increased their behavioral intention, but not their intention to prepare for condom use. A MANOVA showed a simple effect for non-native Dutch participants, who had a higher intention to prepare for condom use than Dutch participants. Implications are discussed.

Sexually transmitted infections (STI's) are a growing health threat to adolescents throughout the world (National Center for HIV, STI and TB Prevention, 2006). Adolescents are especially at risk of contracting STI's, because they are likely to have a higher number of sexual partners and more simultaneous partners than older age groups (Van Empelen & Kok, 2007). Notwithstanding the risks of unprotected sex, many adolescents still engage in risky sexual practices that put them at risk for STI's and other negative health outcomes. Whether or not they are motivated to have safe sex, may be determined by the functions that sexual behavior serves for them. Because of these functional differences, adolescents may display distinct patterns of sexual risk behaviour. (Cooper, Shapiro & Powers, 1998; Gebhardt, Kuyper and Dusseldorp, 2006). Therefore, encouraging sexually active adolescents to engage in safe sex may be more effective if interventions can be tailored to their predominant motivational concerns.

Self-schema matching

A potential way of designing persuasive safer-sex interventions is by addressing the functions that sexual behaviours serve for distinct groups of adolescents. Attempts to motivate individuals to adopt a certain behaviour have been found to be more effective when the persuasive appeal matches the behaviours' functional basis (Petty, Wheeler & Bizer, 2000). In particular, it has been argued that a message containing information relevant to the function served by the behaviour is more persuasive than a message containing functionally irrelevant information (Petty & Wegener, 1998; Ziegler, Dobre & Diehl, 2007). Persuasion experiments have shown that matching a message to an individual's personality characteristics or self-schemata enhances favorable reactions (Cacioppo, Petty and Sidera, 1982; Petty, Wheeler & Bizer, 2005). Self-schema matching

refers to presenting individuals with a message that appeals or conforms to some aspect of a person's self-schema. Self-schemata are cognitive representations of the self, which guide the way people think about themselves and how they represent themselves. Studies in the domain of health behaviour have found that health-related behaviours can best be predicted for persons with a well-developed self-schema in a certain domain, because these persons know what they want (in that domain), and, consequently, are more likely to act upon their intentions (Abraham & Sheeran, 2003; Kendzierski, 1994; Kendzierski & Whitaker, 1997; Sheeran & Orbell, 2000).

Because self-schemata function as organizational cognitive structures, they can be seen as filters that select relevant information to elaborate on or not. Therefore, messages that match a person's self-schema should be scrutinized to a greater extend than messages that mismatch the schema. These differences in cognitive elaboration could lead to either increased or decreased persuasion depending on the quality of the arguments in the message (Petty, Wheeler, and Bizer, 2005). Indeed, a study by Lavine and Snyder (1996) showed that the influence of functional relevance was mediated by subjective perceptions of the quality of the message. Their findings suggest that persuasive messages that provide functionally relevant information are perceived to be higher in quality and to contain stronger arguments than messages that contain functionally irrelevant information. Also, Petty and Wegener (1998) showed that a message that matched the basis of an attitude received greater scrutiny than one that mismatched. If the matched arguments were strong and compelling, matching was more effective than mismatching because the strengths of the arguments were especially appreciated. However, if the matched arguments were weak, mismatching was likely to be more

effective than matching because the weaknesses of the matched arguments was be especially apparent.

Sexual self-schema and motives for sex

A possible approach to motivate adolescents to use condoms is by presenting them with a persuasive message that matches their sexual self-schema. A persons' sexual self-schema concerns the sexual aspects of the self and guides sexual behavior (Andersen and Cyranowski, 1994). De Wit, Breeman and Woertman (2008) developed an adolescent sexual-self concept scale that distinguishes between relationship-oriented adolescents and sex-oriented adolescents. In the context of sexuality and relationships, relationship-oriented participants described themselves as being romantic, passionate and focused on steady relationships. Contrary, sex oriented participants reported to be experimental and focused more on partying and having sex. It seems likely, then, that these two distinct groups of adolescents pursue different goals in their relationships and when having sex. Also, it has been found that these goals fulfill an important role in adolescents' decision whether to use condoms or not (Gebhardt, Kuyper, Greunsven, 2003). If adolescents with distinct sexual self-schemata have distinguishable motives to engage in sex, they may display divergent patterns of risk behaviour. Safe sex interventions might be more effective if they address the function that these sexual (risk) behaviours serve for each group.

A study by Cooper, Shapiro and Powers (1998) showed that distinctive patterns of sexual risk taking can be predicted by the different goals people want to achieve by having sex. Their study distinguished 6 different motives adolescents and young people had to engage in sex: coping, partner approval, peer approval, self-affirmation,

enhancement and intimacy. Participants who were motivated by *coping*, more often reported to engage in sex because they felt lonely or low. Those who were motivated to gain *partner approval*, predominantly reported to have sex to please their partner or because they feared a break-up if they would refuse to have sex with their partner. Similarly, adolescents who wanted to obtain *peer approval*, more often worried that other persons than their partner (e.g., their friends or classmates) would judge or talk about them if they would not have sex. Participants who mostly had sex to acquire *self-affirmation*, reported a desire to feel more interesting and self-confident. Participants who were motivated by *enhancement* reasons, predominantly said they engaged in sex because they felt horny or because they found sex exciting and satisfying. Adolescents who wanted to engage in sex with their partner to gain *intimacy*, mainly wanted to express their love or make an emotional connection with their partner.

The distinct motives participants reported were related to different sexual (risk) behaviours. *Coping* motives were found to be associated with a pattern of risky behaviour, particularly by having multiple partners and engaging in risky sexual practices. Likewise, having sex to *please a partner* was related to greater risk taking and poorer outcomes. *Peer approval* motives were associated with delayed onset of intercourse, and *self-affirmation* motives were related to less frequent intercourse. *Enhancement* motives (e.g., "I want to have sex for the thrill of it") were consistently related to greater sexual risk taking and to more negative outcomes, whereas *intimacy* motives (e.g., "I want to feel emotionally closer to my partner") were linked to less risky behaviour for most outcomes, but also to more frequent intercourse and to less frequent condom use.

The present study

This study will investigate how adolescents can be motivated to use condoms by focusing on motivational components as well as volitional components. Two pilot studies and one main study have been developed to provide adolescent with an intervention that is designed to motivate them to use condoms, and/or to help them plan actual condom use and condom use preparatory behaviours. In the main study, motivation to use condoms and prepare for condom use is manipulated by sexual self-schema (mis)matching. Inclusion of volitional components is based on the health action process approach (HAPA; Schwarzer, 1992), which suggests a distinction between pre-intentional motivation processes and post-intentional volitional processes. According to this theory, a person first enters the motivational phase, in which an intention or goal to act is formed. Only after a goal has been set will a person enter the volitional phase, in which details to act are planned. This intervention study will investigate whether providing participants with action and coping plans will increase their intention to use condoms and prepare for condom use. Action and coping plans are thought to help participants' carry out condom preparatory behaviours (buying, carrying and discussing condom use) and using condoms by specifying when and how condom use can be prepared or performed. The presented article focuses exclusively on the motivational component of functional matching. The volitional aspects of planning are addressed in the parallel article of Kruijsdijk (2008). Because the 3-month behavioral follow-up has not yet been conducted, this study will discuss participants' behavioral intention and preparatory intention.

In this study, several assumptions regarding the effectiveness of sexual self-schema matching and planning on participants' motivation to use condoms and their

motivation to prepare for condom use are tested. Firstly, we propose that participants who receive a motivational message that matches their sexual self-schema will be more motivated to use condoms than participants who receive either a mismatched message or no message. Also, we propose that participants who receive a motivational message that matches their sexual self-schema will be more motivated to prepare for condom use than participants who receive either a mismatched message or no message. Then, we formed 2 assumptions regarding the effectiveness of the planning condition. We propose that participants who receive action and coping plans will be more motivated to use condoms than participants who do not receive these plans. Also, we propose that participants who receive action and coping plans will be more motivated to prepare for condom use than participants who do not receive these plans. Furthermore, we expect that participants who receive both a motivational message that matches their sexual self-schema, and action and coping plans, will be more motivated to use condoms than participants who receive only a matched message or only action and coping plans. Also, participants who receive both a motivational message that matches their sexual self-schema, and action and coping plans, are expected to be more motivated to prepare for condom use than participants who receive only a matched message or only action and coping plans.

Pilot study 1

Methods

Design and procedure

The first pilot study investigated whether participants with a sexual self-schema differed from participants with a relationship self-schema in their motives to have sex and use condoms. Therefore, a questionnaire was created and published on the university

website. Various secondary schools were approached by phone; one agreed to cooperate in the study. During class hours, we informed students that the questionnaire would take approximately 10 minutes to complete, and that participation was voluntary and confidential. Participants then filled out the questionnaires in a computer classroom. In order to recruit more participants, we placed an online add on the major online discussion board for Dutch high school students. Interested students could participate in the study by clicking the url in the add, which led them directly to the questionnaire.

Only 18 and 19 year old adolescents could be enrolled in this study, because younger adolescents would require parental informed consent. To make sure no minors would participate, a disclaimer was placed on the first page of the questionnaire, asking participants to state they were legally of age. Participants were then asked to indicate the descriptiveness of six items for their sexual self (De Wit, Breeman & Woertman, 2008); 'I am lascivious', 'I am a partygoer', 'I am experimental', 'I am relationship-oriented', 'I am romantic' and 'I am passionate'. Furthermore, participants were asked why they would want to engage in sex with their partner and what motivated them to have sex with or without a condom. After completing all questions, participants were thanked and asked to leave their e-mail address. A €15 cd-voucher was raffled among participants who had left their e-mail address.

Participants

A total of 248 adolescents (186 female, 62 male) were enrolled in the study and completed the questionnaire. The convenience sample consisted 18 (n=113) and 19 (n=135) year old participants. The majority of respondents were indigenous Dutch (85%); other participants were predominantly Surinamese, Moroccan or Turkish.

Measures

Sexual self-schema. To assess sexual self-schema we used the Adolescent Sexual Self-Concept Scale (De Wit, Breeman & Woertman, 2008), which consists of six items; 'I am lascivious', 'I am a partygoer', 'I am experimental', 'I am relationship-oriented', 'I am romantic' and 'I am passionate'. Participants were asked to indicate the descriptiveness of the items for their sexual self. High scores on the first three items indicate a sex-oriented self-schema (Cronbach's $\alpha = .52$) and on the latter three items a relationship-oriented self-schema (Cronbach's $\alpha = .64$). All six items were assessed on a 5-point Likert scale (1 = not at all, 5 = very much).

Motives for sex. Cooper's (Cooper, Shapiro & Powers, 1998) six factor model was translated into Dutch by using back translation and was used to ask participants why they would want sex with their partner. Answers were given on a 5-point Likert scale (1= not at all, 5=very much). The *intimacy* motive ($\alpha = .88$) included five items, that is, "To be more intimate with my partner," "To express love", "To make an emotional connection", "To be closer to my partner" and "To feel emotionally closer". Having sex to *experience arousal* ($\alpha = .82$) also consisted of five items, that is, "Because I feel horny", "Because it feels good", "For excitement", "For the thrill of it" and "To satisfy sexual needs". The *self-image* motive for having sex ($\alpha = .84$) was constructed by adding the scores of five items, that is, "To prove my attractiveness", "To feel better about myself", "To feel more interesting", "To feel more self-confident" and "To reassure myself of my desirability". The *coping* motive ($\alpha = .78$) comprised five items, that is, "To cope with upset", "To deal with disappointment", "To feel better when I'm lonely", "To feel better when I'm low" and "To cheer myself up". The *partner* motive for having sex ($\alpha = .90$) encompassed four

items, that is, “Because I fear my partner will no longer love me if I don’t have sex”, “Because my partner might get angry if I don’t have sex”, “Because I worry my partner won’t want me if I don’t have sex” and “Because I’m afraid my partner might leave if I don’t have sex”. Finally, the *others* motive (α = .88) consisted of five items, that is, “I worry that people will talk about me if I don’t have sex”, “Because people will think less of me if I don’t have sex”, “Because others will kid me if I don’t have sex”, “Because my friends are having sex” and “So others won’t put me down”.

Reasons and barriers for condom use. We created eight items assessing why adolescents would use condoms, and six items to assess why adolescents would not use them. All items were based on frequently mentioned reasons and barriers in contemporary literature regarding condom use (Baele, Dusseldorp & Maes, 2001; Bryan, Fisher & Fisher, 2002; Kaneko, 2007; Sheeran, Abraham & Orbell, 1999; Van Empelen & Kok, 2006) and were translated into Dutch by back translation. The items measuring motivation to use condoms were: “To avoid pregnancy”, “To avoids STI’s”, “To avoid HIV/AIDS”, “For my health”, “Because condoms are pleasant”, “Because my partner wants to use condoms”, “In order not to regret it afterwards” and “To be able to have carefree sex”. The six items to measure barriers for condom use were: “Because it is unpleasant”, “Because I have difficulty buying them”, “Because I have difficulty discussing condom use with my sexual partner”, “Because I never carry them with me”, “Because I think I am not susceptible to STI’s, pregnancy, HIV or AIDS” and “Because I think they are too expensive”. All six items were assessed on a 2-point scale (1 = no, 2 = yes). One open ended question asked participants what would be a good reason for them not to use condoms. The answers to this question were categorized and used to calculate

the following items: “I use another anti-conceptive”, “I am in a steady relationship and trust my partner”, “My partner and I have been tested for STI’s”, “Condoms decrease pleasure” and “I have never had sex (with anyone but my present partner)”.

Results and discussion

Motives for sex. Participants’ predominant motives to engage in sex were to please others (M= 4.87; SD = .44) or to obtain intimacy from their sexual partner (M = 3.94; SD = .89). Sex oriented participants mainly reported to engage in sex to cope with negative emotions (t=2,298; df=246; p<.05) and to get sexually aroused (t=2,297; df=246; p<.05). Relationship oriented participants typically reported to have sex in order to obtain intimacy from their sexual partner (t=-3,560; df=246; p<.01) or to get approval from others (t=-2,006; df=246; p<.01).

Reasons and barriers for condom use. Most participants agreed that using condoms is unpleasant, but recognized that using a condom would enable them to have carefree sex (58%). Participants mainly wanted to prevent negative health outcomes, like contracting STI’s (87%), HIV/AIDS(84%) and unwanted pregnancies (70%). Participants with a sexual self-schema predominantly reported that not carrying condoms was a reason for them to engage in unprotected sex (t=3,146; df=246; p<.01). Relationship- oriented participants, on the other hand, mostly said they did not need to use condoms because they were in a steady relationship and trusted their partner (t=-2,649; df=246; p<.05).

Pilot study 2

Adolescents’ motives to engage in sex and their reasons (not) to use condoms were used to create two persuasive messages to promote condom use: one with arguments that

matched the motives of relationship-oriented participants, and one that matched the motives of sex-oriented participants. Because self-schemata function as filters that select relevant information to elaborate on or not, self-schema matched messages should be scrutinized to a greater extend than mismatched messages. These differences in cognitive elaboration could lead to either increased or decreased persuasion depending on the quality of the arguments in the message (Petty, Wheeler, and Bizer, 2005). To test whether adolescents appreciated the quality of the matched message more than the mismatched message, we asked them to rate the relevance and persuasiveness of the message they were randomly presented with.

Methods

Design and procedure

A convenience sample of adolescents and university students was recruited to fill out a questionnaire that assessed whether motivational messages to engage in safe sex were perceived as more relevant and persuasive when they matched rather than mismatched participants' sexual self-schemata. We approached university students by handing out flyers on the university area and asking them to participate in exchange for course credit. Eighteen and nineteen year old adolescents were approached by adds that we placed on the major online discussion board for Dutch high school students. An incentive for participation was offered as the possibility of winning a cd-voucher through a lottery. Again, minors were not allowed to participate in the study because they would need their parents' informed consent to participate. Adolescents and students were informed that the questionnaire would take approximately 10 minutes to complete and that participation was voluntary and confidential. Interested adolescents and students

could email the researcher who returned their e-mail with instructions and the questionnaire. After entering their gender and age, participants reported to what extent six items described their sexual self (De Wit, Breeman & Woertman, 2008). Answers were given on a 5-point Likert scale (e.g., "I am romantic" 1 = not at all, 5 = very much). Subsequently, participants were randomly provided with either the relationship-oriented message (which can be found in appendix A) or the sex-oriented message (which can be found in appendix B). Then, they rated the relevance and the persuasiveness of the message. After completion, participants sent the questionnaire to the researchers by e-mail.

Participants

The majority of participants (N=71) in the studied sample were female (68%). Participants had a mean age of 21 years (SD = 3.49).

Measures

Sexual self-schema. Sexual self-schema was included as the independent variable, and was assessed by using the Adolescent Sexual Self-Concept Scale (De Wit, Breeman & Woertman, 2008).

Relevance of the message. The relevance of the message was the first dependent variable, and was assessed by one item: 'I think the content of the text is relevant'. The item was assessed on a 5-point Likert scale (1 = I totally disagree, 5 = I totally agree).

Persuasiveness of the message. The persuasiveness of the message was the second dependent variable, and was assessed by the item: 'I think the messages of the text is persuasive'. The item was assessed on a 5-point Likert scale (1 = I totally disagree, 5 = I totally agree).

Results and discussion

Previous research indicates that matching messages to individuals' self-schema leads to increased or decreased persuasion, depending on the messages' argument quality (Lavine and Snyder,1996; Petty and Wegener, 1998; Petty, Wheeler & Bizer, 2005). In accordance with these findings, our second pilot study showed that messages to promote safer-sex were perceived as more relevant (t=2,631; df=69; p<.01) and persuasive (t=5,473; df=69; p<.01) when they matched rather than mismatched recipients' sexual self-schema.

Main study

Methods

In this study, the effects of sexual self-schema matching and planning on adolescents' intention to use condoms were investigated. Therefore, a questionnaire was created and published on the university website. The questionnaire contained 4 interventions and one control condition, among which participants were randomly dispersed.

Design and procedure

For our main study, a total of 87 schools were approached, of which 12 agreed to participate. All levels of education were included. Because we wanted to investigate whether ethnicity would account for differences in outcomes between participants, schools in major (e.g., Amsterdam) and middle-sized Dutch cities (e.g., Delft) were selected to obtain an ethnically diverse sample of participants. We provided students with a 10 minute introduction about the intervention during normal class hours. In some cases, having received our instructions beforehand, teachers did the introduction themselves.

Students were informed that the online questionnaire would take approximately 15 minutes to complete and that participation was voluntary and confidential. Informed assent and informed parental consent were obtained for adolescents aged 12 – 17 years. Per the informed consent - and assent protocol, the students and their parents or caregivers were informed that adolescents' responses to sexual behaviour and condom use items would be kept confidential. The Medical Ethic Technical Commission (METC) of the University Medical Centre (UMC) in Utrecht supported the informed consents. Participants were given a card with login codes, which enabled them to fill out the questionnaire.

The questionnaire started by asking participants about their age, gender, religion, level of education, ethnicity, partner status and sexual experience. Then, participants reported to what extent six items described their sexual self (e.g., "I am passionate" 1 = not at all, 5 = very much). Participants' scores on these items were calculated into their sexual self-schema, and they were randomly allotted to one of the intervention studies or to the control condition. Participants who were allocated to the first condition formed the control group, and were neither presented with a message nor with action and coping plans. The second condition presented participants with a message that matched their sexual self-schema. Participants who were allotted to the third condition received a mismatched message. In the fourth condition, participants' self-efficacy in the domain of buying, carrying, discussing and using condoms was measured. Participants were then provided with action and coping plans regarding the behaviour in which they had lowest efficacy beliefs. The fifth condition presented participants with both a matched message and action and coping plans. After allotting participants to one of the conditions, they

were asked to report their condom use intention, and their intention to prepare for condom use. Having completed all questions, participants were requested to leave their e-mail address so we could contact them for a short follow-up study 3 months later. An Ipod-nano will be raffled among participants who complete both the main study and the follow-up.

Participants

398 participants (256 females, 142 males) who's age ranged between 12 and 19 years (M = 15.75, SD= 1.89) were enrolled in the main study. The majority of participants reported to be exclusively heterosexual (91%). Male participants who reported being mainly or exclusively sexually interested in males, were given an adopted questionnaire, which enabled them to select the gender of their preferred sexual partner. Boys who were exclusively sexually interested in males, would therefore be presented with the same questionnaire as heterosexual girls. Girls who reported being sexually interested mainly in women were excluded from the study because we reasoned that condom use would not be an important issue in lesbian relationships. The majority (68%) of participants was born in the Netherlands, whereas other participants predominantly had a Moroccan (10%), Turkish (3%) or Surinamese (4%) ethnicity. When participants themselves, or one or both of their parents had been born in another country than The Netherlands, participants were regarded as having a non-native ethnicity. Half of the participants (51%) attended education at vocational level, whereas 49 percent attended higher education. Participants who were in a steady relationship (62%) reported significantly more experienced with intercourse than those who were not currently in a steady relationship (t=-8,396; df=396; p<.01).

Measures

Condition was included as an independent measure and was assessed by 4 intervention conditions and 1 control condition. The first condition was the control group, in which participants were neither presented with a message nor with action and coping plans. The second condition presented participants with a persuasive message that matched the motives that were associated with their sexual self-schema. Participants who were allotted to the third condition received a mismatched message. In the fourth condition, participants self-efficacy in the domain of buying, carrying, discussing and using condoms was measured. Participants were then provided with action and coping plans regarding the behaviour in which they had lowest control beliefs. For example: If a male participant asked for advice regarding condom use discussion, he first was presented with 4 tips, e.g., "Tell her that you want to use condoms because you don't want to contract an STI or HIV/AIDS and because you don't want to get her pregnant. This is not a matter of distrust, you are simply being honest." Then, he could select one of the tips that was most helpful to him, and he would receive the same tip, now as a plan. This would be: "When I am going to have sex with a girl, I will tell her that I want to use condoms, because I do not want to get an STI and I do not want to get her pregnant". The tips and plans that were used can be found in appendixes C to H. The fifth condition presented participants with both a matched message and action and coping plans.

Sexual self-schema was included as an independent measure in the matching intervention and was assessed by using the Adolescent Sexual Self-Concept Scale (De Wit, Breeman & Woertman, 2008).

Self-efficacy was used as an independent measure in the planning intervention, and was assessed by three efficacy-belief items regarding buying and carrying condoms, discussing condom use with a sex partner and using condoms (α = .82). Regarding each item, respondents were asked how difficult it would be for them to engage in the behaviour, for example "I think buying and carrying condoms is/ would be (1= very difficult, 5= very easy) . The mean score of these items was used for analyzing.

Socio-demographic variables. Gender (male vs. female), ethnicity (Dutch vs. non-native), education level (low vs. high), religion (yes vs. no), partner status (single vs. in a relationship) and sexual experience (yes vs. no) were included as moderator variables.

Intention to use condoms was included as a dependent variable, which was measured by four items (α = .89). The first item was: "How likely is it that you will use condoms when having intercourse with a new partner?" (1= highly unlikely to 5= highly likely). The other three items stated: "I am planning to always use condoms when having intercourse with a new partner", "I always want to use condoms when having intercourse with a new partner", "I intend to always use condoms when having intercourse with a new person". Responses ranged from 1 to 5 ("totally disagree" to "totally agree"). All items were translated into Dutch by back translation.

Intention to prepare for condom use was the second dependent variable, and was assessed by 3 items that measured the intention to buy condoms, carry condoms and discuss condom use with a new sex partner (α = .69). These items were: "I intend to buy condoms when I think I will need them", "I intend to carry condoms when I think I will need them" and "I intend to discuss condom use with an new person". Responses ranged

from 1 to 5 (“totally disagree” to “totally agree"). All items were translated into Dutch by back translation.

Data analysis

Between subjects univariate analyses of variance (ANOVA’s) were conducted to determine significant associations between predictor and outcome variables. A single multivariate analysis of variance (MANOVA) was performed to explain differences between participants of an included moderator variable. Because the data were skewed, outliers were removed and original scores were transformed using inverse transformation.

Results

Intention to use condoms

The behavioural intention scores were averaged and subjected to a single factor (condition: baseline, match, mismatch, planning or match and planning) between-participants ANOVA. This analysis revealed a significant main effect of condition, $F(4, 40) = 2.39$, $p = .05$. Post hoc comparisons using the LSD showed that planning (M=0.29, SD=0.19) increased behavioural motivation regarding condom use, compared to baseline (M=0.29, SD=0.19), match (M=0.24, SD=0.09), and mismatch (M=0.24, SD=0.07). Our hypothesis that the matching intervention and the combined matching and planning intervention would result in higher intentions to use condoms, was not confirmed. Table 1 presents the means of each cell in the design.

Intention to prepare for condom use

None of the interventions increased participants’ preparatory intention as compared to the control condition.

Moderation analysis for condom use intention

Moderator variables did not account for any differences in intention between participants who had been provided with different interventions or the control condition, indicating that the interventions had the same effect on all subgroups. No interaction effects were found (all F's ≤ .165, ns).

Moderation analysis for preparatory intention

As for participants' intention to prepare for condom use, a marginal two-way interaction effect of condition with ethnicity was found; $F(4, 395) = 2.12$, p=.078, $\eta^2 = .022$. This finding indicates a difference between Dutch participants and non-native Dutch participants in their intention to prepare for condom use. A MANOVA showed a simple effect for non-native Dutch participants, who had a higher intention to prepare for condom use. Post Hoc comparisons between between subjects design showed a main effect for the control condition $F(1, 394) = 7.69$, p=.006., and the combined intervention of planning and match within this group $F(1, 394) = 7.40$, p=.007. A marginal significant effect was found for the planning condition $F(1, 394) = 2.88$, p=.090. Table II shows the means for adolescents' intention to prepare for condom use. None of the other moderator variables were significant (all F's ≤ .015, ns).

Discussion

Our expectation that providing participants with action and coping plans would increase their intention to use condoms as compared to participants in the control condition, was confirmed. These findings indicate that adolescents benefited from receiving tips and plans regarding buying, carrying, discussing and using condoms. The other assumptions regarding the effectiveness of the interventions on behavioral intention could not be confirmed. Contrary to the planning intervention, the matching intervention

and the combined intervention of planning and matching did not motivate participants to form behavioral intentions. This indicates that these interventions were not more effective than the control condition.

Likewise, presenting adolescents with a matched message and/or action and coping plans did not increase their intention to prepare for condom use. Furthermore, the only social demographic variable that accounted for differences between the participants, was ethnicity, indicating that non-native Dutch participants benefited more from the control condition and the combined planning and matching intervention than Dutch adolescents. Non-native Dutch participants were more likely to form preparatory intentions after being presented with both a matched message and tips and plans. Curiously, they also benefited from the control condition. Further research which is more focused on ethnically diverse adolescents might investigate which kind of intervention is most helpful for these participants.

General Discussion

Results of the present studies indicate that adolescents who were provided with tailor-made advice concerning buying, carrying ,discussing or using condoms, had a higher intention to use condoms than participants who were presented with other interventions. The matched intervention and the combined intervention of match and planning, did not increase participants' intention to use condoms and to prepare for condom use.

Self-schema matching

Results of the pilot studies show that adolescents' sexual self-schemata are associated with distinct motives to engage in sex, and that messages to promote condom

use are perceived as more relevant and persuasive when their arguments match the motives that are related to participants' sexual self-schema. Nonetheless, presenting participants with matched messages did not increase their motivation to use condoms or prepare for condom use. It seems, then, that merely presenting adolescents with a persuasive message to use condoms might not be sufficient to increase their behavioral intention. We speculate that our matching intervention might have failed to be effective due to participants' differences in self-schema importance. That is, persuasive messages that match self-schemata are assumed to be more effective for individuals who's self-schema is important to them (Abraham & Sheeran, 2003; Kendzierski, 1994; Kendzierski & Whitaker, 1997; Sheeran & Orbell, 2000). Self-schema importance might have moderated outcomes in at least two ways: Firstly, our study only distinguished sex-oriented participants and relationship-oriented participants. Because participants had to be allotted to one of the schemata, no distinction was made between extreme and moderate scorers. Possibly, participants who scored less extreme might have been less persuaded by the matched messages because these motives might have been less relevant to them. Secondly, differences in self-schema importance might have accounted for the gap in persuasion and intention between the pilot studies and the main study. Whereas the pilot samples exclusively included adolescents older than 18 years, the main study sample consisted of participants between the ages of 12 and 19. As sexual-self-schemata develop over time, younger participants might have been less interested in - and experienced with - relationships and sexuality. Therefore, motives that were relevant to the older participants in the pilot studies, might have been less important to the younger, inexperienced adolescents in the main study. Future research might be able to distinguish

better between “true” schematics and a-schematics, by measuring the extremeness of scores or the extent to which participants rate sexual self dimensions to be important to them (Markus, 1977).

Also, many participants attended practical education, which is the lowest educational level in The Netherlands. Although we tried to design an intervention that would be effective and comprehensible for adolescents from all school types, some participants attending practical school did not understand the adjectives (e.g., “passionate” and “experimental”) which were used to assess sexual self-schema. However, since these schools are populated with adolescents who are at highest risk for negative sexual outcomes, we decided to include these students in our studies. Being aware of the problems that might be encountered while working with these adolescents, we had presented their teachers with the questionnaire beforehand, enabling them to signal bottlenecks. The teachers were then instructed to discuss these issues in class, before the questionnaire was filled out by the students. Questionnaires were filled out in class, in the presence of a teacher or researcher, to whom questions could be addressed. When required, we assisted individual students who reported difficulties filling out the questionnaire. Although the students said not to mind this intrusion, their answers might have been influenced by our presence.

Furthermore, we recognize that the topic of sexual behaviour may be highly sensitive to adolescents. Therefore, our results might have been vulnerable to social desirable answers. Some participants might have been hesitant to report high scores on the sex-orientated items, indicating that a number of relationship-oriented participants might not have been true schematics. In the match intervention, these adolescents would

have been presented with motives that were less persuasive and relevant to their true sexual self-schema than those in the mismatch condition. Although we stressed the confidentiality, and participants filled out the questionnaire individually, they might still have been concerned about their privacy.

Planning

The planning intervention showed that providing participants with advice and plans concerning condom use and condom preparatory behaviours, increased their behavioral intention. Enabling participants to select the advise and plans of their choice concerning buying, carrying, discussing or using condoms, increased their motivation to use condoms. These findings confirm previous studies, which showed that preparing for condom use might play an important role in the mediation of intended and actual condom use (Sheeran, Orbell & Abraham., 1999; Van Empelen and Kok, 2007). Planning studies normally select participants on the criterion that they must already have formed a behavioral intention. However, no such criterion was included in the present study, in which participants were randomly assigned to the matching and planning interventions. The finding that participants' intention to use condoms nonetheless increased by providing them with action and coping plans, shows that planning can increase intention, even if no previous intention has been formed. Further research should explore this issue.

Compared to the matching intervention, the planning intervention might have been more effective because participants could choose advice that was tailored to their personal wishes, making this intervention far more custom-made than the group based matching intervention. Moreover, the matching intervention required participants to passively read a message, which might have allowed them to skim through the message

without paying much notice to its content. In the planning intervention, however, participants actively had to answer questions concerning their own condom use abilities, which might have increased their attention and involvement. It seems, then, that helping participants overcome individual barriers to use condoms, might be more effective than motivating adolescents to use condoms by sexual self-schema matching.

Conclusion

This study addressed the question how successful interventions can be designed and implemented to encourage consistent condom use by sexually active adolescents. Our study showed that presenting participants with sexual self-schema matched messages did not increase adolescents' intention to use condoms or prepare for condom use. However, enabling participants to choose their own tips concerning buying, carrying, discussing or using condoms, did increase their behavioral intention. Interventions that require adolescents to actively plan condom use and preparatory behaviours, might therefore be more effective than interventions that merely motivate participants to use condoms.

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Table I

Mean Motivation Scores of Adolescents' Behavioural Intention Divided by Condition

Condition	*M*	*SD*	*n*
Control	.25	.11	73
Match	.24	.09	88
Mismatch	.24	.07	75
Planning	.29*	.19	84
Planning & Match	.27	.14	75
Total	.26	.13	395

Note. * $p < 0.05$.

Table II

Mean Motivation Scores of Dutch and non-native Dutch Adolescents to Prepare for Condom Use

Condition	*M*		*SD*		*n*	
	Dutch	Other	Dutch	Other	Dutch	Other
Control	.25	.33*	.04	.17	48	25
Match	.28	.30	.10	.04	66	22
Mismatch	.28	.27	.08	.04	48	27
Planning	.26	.30	.13	.24	49	35
Planning & Match	.27	.36*	.08	.22	52	23
Total	.27	.31	.09	.17	263	132

Note. * $p<.001$.

Appendix A

Persuasive message for relationship-oriented participants

You love to be romantic!

Generally, you are someone who enjoys romance and relationships. Being passionate and romantic are qualities that suit you. You are not looking for a casual flirt, but for a pleasant, intimate relationship. You like visiting the cinema with your boyfriend /girlfriend or snugly watching a movie together at home. If you have found a nice guy/ girl who is just as romantic as you are, the two of you can be very happy together!

If you have sex with your boyfriend/girlfriend, it is important for you to be intimate together and to trust each other. You can trust each other without worries if you always use condoms, even if you/ your girlfriend uses the anti-conception pill. Like the pill, condoms protect against pregnancies. Moreover, by using a condom, you will prevent STI's and HIV/AIDS for the both of you.

Even if using a condom isn't always pleasurable, by using a condom, you can enjoy carefree intimacy with your partner. And that is what really matters to you!

Appendix B

Persuasive message for sex-oriented participants

You love to seduce!

Generally, you are someone who enjoys flirting and adventure. Gaining novel experiences and being adventurous are qualities that suit you. You would rather choose to have an exciting flirt for one night, than a serious, committed relationship.
You like partying and meeting new people, or picking up an attractive guy/girl. If you have found a nice guy/ girl who is just as adventurous as you are, the two of you can have lots of fun together!

If you have sex with a guy/girl, it is important for you to be aroused and to enjoy the sex. You can enjoy carefree sex with each other if you always use condoms, even if you/ your girl uses the anti-conception pill. Like the pill, condoms protect against pregnancies. Moreover, by using a condom, you will prevent STI's and HIV/AIDS for the both of you.

Even if using a condom isn't always pleasurable, by using a condom, you can enjoy carefree sex with a nice guy/girl. And that is what really matters to you!

Appendix C

Tips regarding buying and carrying condoms

"You will benefit most from tips regarding buying and carrying condoms.
Choose the tip which you think you can use best."

Tip1:

"Realize that you are not doing anything strange: the person selling you condoms has many customers that buy condoms. If you still have difficulty buying condoms, take a friend with you to buy condoms. It might be less scary to buy them together, and maybe you can laugh about it afterwards!"

Tip 2:

"If you don't want to run into people you know, go to a shop that is not situated in the are where you live, and visit the store on a quiet time."

Tip 3:

"If you find condoms too expensive, visit the website of the Jippy foundation (http://www.jippy.eu/). On this website, you can buy condoms for 15 cents each. Your area health authority also sells very cheap condoms of high quality."

Tip 4:

“Choose a specific place in your jacket or bag (which you always wear or carry with you) in which you can carry condoms. Be careful not to damage them, so don’t put them in your wallet.”

Appendix D

Plans regarding buying and carrying condoms

“Usually, it is easier to perform a behaviour if you make a plan beforehand. This plan may be very simple. As soon as the situation occurs, you will know exactly what to do. A plan for you could be:”

Plan 1:

“If I notice that I need condoms, I will ask my best friend to go and buy condoms with me.”

Plan 2:

“If I am going to buy condoms, I will visit a shop where I cannot run into people I know. For instance, a shop which is not situated in the area where I live."

Plan 3:

“If I want to buy condoms, I will buy them from my area health authority or I will order them online from the jippy foundation (http://www.jippy.eu/)."

Plan 4:

“If I go out, I will make sure to always be carrying a condom in my jacket or my bag, in a place where they cannot get damaged."

Appendix E

Tips regarding discussing condom use

"You will benefit most from tips regarding discussing condom use.
Choose the tip which you think you can use best."

Tip 1:

"Tell her that you want to use condoms because you don't want to contract an STI or HIV/AIDS and because you don't want to get her pregnant. This is not a matter of distrust, you are simply being honest."

Tip 2:

"Before having sex, think about how and when you will discuss safe sex and the use of condoms with your sexual partner. If you know in advance how to talk about this, it will be much easier at the moment itself!"

Tip 3: (for boys, the girls' tip is to take the condom and present it to their sexual partner)
"Don't talk, just do. Take a condom at the moment you need one and put it on. Without discussion. Most probably, your girlfriend will be relieved that she does not need to bring up the topic of condom use."

Tip 4:

"If your partner does not want to use a condom, tell him/her that you don't want to have sex without a condom. If you explain why, your partner is likely to understand that you can enjoy carefree sex if you use a condom."

Appendix F

Plans regarding discussing condom use

“Usually, it is easier to perform a behaviour if you make a plan beforehand. This plan may be very simple. As soon as the situation occurs, you will know exactly what to do. A plan for you could be:”

Plan 1:

“When I am going to have sex with someone, I will tell him/her that I want to use condoms, because I do not want to get an STI and I do not want to get (her) pregnant.”

Plan 2:

"When I think I will have sex with someone, I will think about how and when I will bring up the topic of safe sex and condoms in advance.”

Plan 3:

"When I’m about to have sex with someone, I will take a condom and put it on. Without discussion.”

Plan 4:

"When I am going to have sex with someone who does not want to use condoms, I will tell him/her that I do not want to have sex without a condom."

Appendix G

Tips regarding condom use

"You will benefit most from tips regarding condom use.

Choose the tip which you think you can use best."

Tip 1:

"Buy a pack of condoms before having sex, and experiment with them on your own. If you are going to have sex, then you will know how to use them."

Tip 2:

"Always use a condom according to the manual, which decreases the chance of tearing and slipping. Never use two condoms at a time and use a condom only once. Use a new condom if you want to have sex again. A lot of information regarding the use of condoms can be found on the internet, for example on the website of youth information foundation www.jippy.org."

Tip 3:

"If you know how to use condoms, the act of putting on a condom is merely a short disruption of sex. If you know what you are doing, you can have carefree sex in no time!"

Tip 4:

"Intend to use condoms also when you are (slightly) drunk or stoned."

Appendix H

Plans regarding condom use

“Usually, it is easier to perform a behaviour if you make a plan beforehand. This plan may be very simple. As soon as the situation occurs, you will know exactly what to do. A plan for you could be:”

Plan 1:

"When I think I will have sex, I will buy a pack of condoms in advance to experiment with so I will know how to use them.”

Plan 2:

"When I use condoms, I will always use them according to the manual. I will only use a condom once."

Plan 3:

“When I have sex with someone, I will always use a condom, even if it bothers me that having to put on a condom will disturb the sex."

Plan 4:

"Even if I have sex after I have drunk too much, I will remember to use a condom."