

Experimental research on the influence of message framing to reduce the intentions of sexual risk behavior in adolescents in the Limpopo province, South Africa



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Abstract

Context: HIV is still a major problem in South Africa, 17.9% of the adults aged 15 to 49 is estimated to be HIV positive. Young people are a major risk group when new HIV infections are concerned, because adolescents are likely to engage in sexual risk behavior. To reduce new HIV-infections, HIV evidence-based prevention programs should be implemented such as CHAMP in which information provision combined with gender and sexual and reproductive health training is very important. Knowledge training seems insufficient to attain safer sexual behaviour, if offered in isolation. Message framing could play an important role in the effectiveness of knowledge provision. Rothman and Salovey (1997) developed a theory regarding shaping perceptions to motivate healthy behavior considering the role of message framing. Framing should match individuals' beliefs about a behavior and should make a distinction in how health-relevant communications is framed; namely in terms of the benefits (gains) or costs (losses) associated with a particular behavior. The current study is based on their theory. The research question is: Is there a difference in sexual risk behavior intentions in rural South African adolescents when providing either gain- or loss-framed messages, considering prevention and detection behavior? *Method:* This experimental study used a one factor between-subject design. An experiment was conducted where information framing was manipulated (gain-framed, loss-framed, and control condition). The main analysis consisted of comparing the means on sexual health behavior intentions (condom use and HIV-testing) across the different conditions. *Results:* No significant differences were found between the three different message frame conditions. Logistic regression analysis was conducted as exploratory means and indicated a unique statistically significant contribution to the model by grade (on both condom use intentions and HIV-testing intentions) and by sexual history (on HIV-testing intentions). *Conclusion:* The absence of a main effect of condition in the current study might be due to several limitations, language barrier to name one of them. Further research is needed to enhance the effects of message framing since message framing has been found effective in changing health behavior in previous research, which could be applied to change sexual risk behavior of South African adolescents living in a rural area.

Keywords: Message framing, sexual risk behavior intentions, HIV, AIDS, adolescents, condom use,
South Africa

Introduction

HIV (Human Immunodeficiency Virus) infection is a major problem in South Africa, 17.9% of the adults aged 15 to 49 is estimated to be HIV positive (UNAIDS, 2013). The infection rate continues to be incredibly high, with 1.6 million people dying of AIDS (acquired immunodeficiency syndrome)-related causes in 2012 alone (WHO, 2013). HIV can be transmitted by entering the body via mucous membranes or through blood-blood contact (UNAIDS, 2013). HIV attacks the immune system by infecting CD4 immune cells. Low CD4 count and a high viral load indicates advanced HIV-infection. When the CD4 count drops under 350, people are more prone to opportunistic infections, at this stage HIV is referred to as AIDS (AIDS gov., n.d.). Antiretroviral treatment (ART) can prolong life expectancy by increasing the CD4 levels (FDA, 2013).

Young people are a major risk group when new HIV infections are concerned (WHO, 2006). One of the explanations for this is that adolescents are more likely to engage in sexual risk behavior (Gloppen, David-Ferdon & Bates, 2010). To reduce new HIV-infections, HIV prevention programs should be implemented (Harrison, 2009; WHO, 2006) to reduce sexual risk behavior (Goh, Primavera & Bartalini, 1996; Jewkes et al., 2006), preferably in school-based prevention programs in order to reach a vast number of youth.

The Ndlovu Care Group (NCG) is an organization which is trying to reduce new HIV infections by improving sexual health (Tempelman, Slabbert, Gosling & Vermeer, 2010). Primary prevention is considered the most important step to lowering HIV-rates. NCG uses the AIDS-awareness program CHAMP; Community, Health, Awareness, Mobilization, and Prevention Program. The CHAMP behavioral change program is part of the Stepping Stones program (Jewkes et al., 2006), which is designed to promote sexual health through participatory learning approaches; to build knowledge, risk awareness, communication skills, and to improve psychological well-being and prevent HIV (Jewkes, Woods & Duvvury, 2010). CHAMP is a program that focuses on mobilizing the whole community to test for disease, creating awareness around HIV and AIDS, tuberculosis, and risky behaviors, and decreasing the risk of stigma by changing the community's attitudes towards people living with AIDS (PLWA) (Tempelman, Slabbert, Gosling & Vermeer, 2010). The CHAMP consists of a fourteen-session training program, in which information sharing plays an important role.

Prevention program content should be well planned because it is important that adolescents learn and remember the information that is provided. Message framing could play a decisive role in this.

Few studies have explored the application of message framing to promote healthy behaviors in adolescents. This study will focus on getting insight into the impact of message framing on the intentions of risky sexual behavior in adolescents, which is in line with recent health psychological insights. If message framing has a significant effect on lowering the intentions of sexual risk behavior (i.e. increase sexual healthy behavior), these results could be applied in order to improve the CHAMP program and lower HIV incidence. This study investigated the theory of message framing in a specific area; Limpopo, South Africa, which is of practical relevance. There is also scientific relevance in this study since message framing is used for the first time in promoting healthy sexual behavior in adolescents. The study is moreover socially relevant, because it provides a representation of the sexual behavior intentions of South African adolescents.

Sexual risk behaviors & knowledge provision

Sexual risk behaviors are defined by the increased risk of negative health consequences. A distinction can be made between risky behaviors which increase the chance of contracting or transmitting a disease; sexually transmitted infections (STI's), and risky behaviors that increase the chance of unwanted pregnancy (Kotchick, Schaffer, Miller & Forehand, 2001). This study will focus on the former dimension of sexual behavior and includes topics like condom use and HIV-testing, both topics which are relevant for the prevention of HIV through healthy sexual behavior.

Knowledge plays an important role in the initiation of sexual risk behavior, since it can (indirectly) influence the behavior (Fisher & Fisher, 1992; Givaudan, Van de Vijver, Poortinga, Leenen & Pick, 2007; Goh, Primavera & Bartalini, 1996). Therefore it is important to provide adolescents with accurate information during preventive programs, like CHAMP. Knowledge about HIV/AIDS is defined as general knowledge about biological aspects of HIV/AIDS, transmission risks, attitudes toward AIDS, attitudes towards PLWA and beliefs and myths about HIV/AIDS and risk practices (Givaudan, Van de Vijver, Poortinga, Leenen & Pick, 2007). Initial behavior changes seem to occur at the cognitive level, where knowledge about HIV/AIDS is important to change sexual

behavior (Givaudan, Van de Vijver, Poortinga, Leenen & Pick, 2007). A persuasive health message can have profound effects on a person's behavioral intentions, and can influence actual behavior as well (Ajzen, 1985). Information provision alone seems insufficient to attain safer sexual behavior (Fisher & Fisher, 1992). The way in which information is provided may have a profound impact on its effectiveness. Message framing could therefore play an important role in the effectiveness of knowledge provision (Levin Schneider & Gaeth, 1998; McNeil, Pauker, Sox & Tversky, 1982; Rothman & Salovey, 1997; Tversky & Kahneman, 1981).

Message framing

Rothman and Salovey (1997) developed a theory regarding shaping perceptions to motivate healthy behavior considering the role of message framing. A crucial aspect of Rothman and Salovey's theory (1997) is that framing should match an individual's beliefs. They made a distinction in how to frame health-relevant communications: health information can be framed in terms of the benefits offered by adopting a health behavior; gain-framed (e.g. using condoms help prevent STI's), or in terms of the costs associated with failing to adopt a health behavior; loss-framed (e.g. failing to use a condom increases your risk of incurring STI's) (Rothman & Salovey, 1997). According to them, the framing of such persuasive messages can influence health decision making.

According to the hedonic principle people approach pleasure and avoid pain, this is an ancient motivation principle which still continues to exist today (Ahtola, 1985). The Prospect Theory provides a predictive account to describe how people respond to gain- and loss-framed information. Messages advocating a low-risk behavior are most effective if they emphasize the benefits of adherence (gain-framed), whereas messages advocating a risky behavior are most effective if they emphasize the costs of non-adherence (loss-framed) (Tversky & Kahneman, 1981). Thus, people are risk seeking when they consider losses and risk averse when they consider gains (Tversky & Kahneman, 1992). The relative effectiveness of gain-framed or loss-framed messages depends on whether a behavior serves an illness-detecting (high risk behavior) or a health-affirming function (low risk behavior) (Rothman & Salovey, 1997). With behaviors that are viewed as having a high degree of risk or uncertainty (for example, illness detection behaviors such as HIV testing, where a person may discover a serious

health problem), people are more likely to take those risks when consequences are framed as losses. In contrast, for behaviors that are viewed as affording relatively safe or certain outcomes (for example, illness prevention behaviors such as condom use), people would be more likely to engage in those behaviors when consequences are framed as gains (Rothman & Salovey, 1997). Previous research has shown that detection behaviors appear to be promoted more effectively with loss-framed messages (Abood, Coster, Mullis & Black, 2002; Banks et al., 1995; Kalichman & Coley, 1995; Meyerowitz & Chaiken, 1987; Schneider et al., 2001a; Williams, Clarke & Borland, 2001). Prevention behaviors are generally better off with gain-framed messages, which may be explained by the perception of prevention behaviors as not risky (Detweiler, Bedell, Salovey, Prinin, & Rothman, 1999; Farrell, Ferguson, James, & Lowe, 2001; Linville, Fischer, & Fischhoff, 1993; Millar & Millar, 2000; Rothman, Salovey, Antone, Keough, & Martin, 1993; Schneider et al., 2001b).

Rothman and Salovey (1997) argued that “The influence of framed information on decision making is contingent on people, first, internalizing the advocated frame and, then, on the degree to which performing a health behavior is perceived as risky” (Rothman and Salovey, 1997, p.3). Thus, Rothman and Salovey argue that a person’s construal of a behavior (risky versus safe outcomes) should determine which frame will promote greatest adoption. Furthermore, they argue that the underlying detection versus prevention function of a health behavior should act as a heuristic for determining whether people view a behavior as risky or safe (Updegraff & Rothman, 2013). They suggested that three important steps determine the ultimate influence of a framed health recommendation: “First, the message needs to be processed in sufficient depth, so it can be integrated into an individual’s mental representation of the health issue. Second, the frame advocated by the message needs to be accepted by the perceiver. Third, the frame motivates behavior only to the extent that a person’s perception of the recommended behavior is appropriate for the adopted frame” (Rothman & Salovey, 1997, p.17).

Higgins (1997) endorsed this view of Rothman & Salovey (1997) and introduced the Regulatory Focus theory. Higgins argued that people’s preference of message framing is not only situated on the type of information given but is also dependent on people’s message frame disposition. This Regulatory Focus proved to have a major impact on people’s feelings, thoughts, and actions

(Higgins, 1997) and has the potential to maximize message persuasiveness (Dijkstra, Rothman & Pietersma, 2011). Covey (2014) concluded in his review on the role of dispositional factors in moderating message framing that the relative effectiveness of gain- or loss-framed messages can depend on the message frame disposition of the recipient (Higgins, 1997). Higgins (1997) developed a questionnaire to investigate people's disposition in respect of their gain- or loss framed focus, which will be incorporated in this study.

Behavioral intentions

Behavioral change is aspired in case of sexual risk behavior. Intention to reduce risk behavior is an essential precursor of possible behavior change (Prochaska & Velicer, 1997). Research in the area of message framing has shown that frames influence behavioral intentions (Gallagher & Updegraff, 2011). The Theory of Planned Behavior states that intentions are the result of attitude towards behavior, subjective norms, and perceived behavioral control which may subsequently produce behavioral change (Ajzen, 1991). According to the Transtheoretical Model of behavior change, people's readiness to change to healthier behavior depends on the stage of change they are in. People have to prepare themselves before they move into action (Prochaska & Velicer, 1997). Providing knowledge can help someone to get to the next stage, which in the end can support people to perform healthier behavior such as condom use (Tung, Hu, Efird, Su & Yu, 2013). There is a positive correlation between knowledge about HIV and behavioral intentions (Kuznetsov, Matterné, Crispin, Ruzicka, Zippel & Kuznetsov, 2013). However, good intentions do not always translate into actual behavior change, a phenomenon that is known as the intention – behavior gap (Webb & Sheeran, 2006). Still, behavioral intentions are good predictors of behavioral change (Prochaska & Velicer, 1997), and will be used in current study.

Effects of message framing on behavioral intentions

Many studies investigated the influence of message framing on behavioral intentions. In a review done by Akl et al. (2011) they concluded that the available low- to moderate quality evidence suggests goal framing (gain versus loss) may have little if any consistent effect on health consumers' behavior. The

unexplained heterogeneity between studies suggests the possibility of a framing effect under specific conditions (Akl et al., 2011). Another review provides evidence that health message framing is an important consideration in the design of messages promoting prevention behavior (Gallagher & Updegraff, 2011). Gain-framed messages were significantly more likely than loss-framed messages to encourage prevention behaviors (particularly for skin cancer prevention, smoking cessation, and physical activity). There was no significant loss-frame advantage within any specific domain of prevention behavior, not even when detection focused messaging was taken into account (Gallagher & Updegraff, 2011). The same results were found by O’Keefe and Jensen (2007) who reviewed the relative persuasiveness of message framing for encouraging disease prevention behaviors. They concluded that gain-framed disease prevention messages (which emphasize the advantages of adherence) were found significantly more persuasive than loss-framed appeals (which emphasize the disadvantages of non-adherence). Gain framed prevention messages turn out to have a more positive effect on behavioral intentions than loss framed messages, considering prevention behavior.

Research shows that loss-framed message framing can however have positive effects as well, considering detection. Results investigating message framing and STI/ HIV testing indicate that gain-framed messages induced greater adherence for prevention behaviors (e.g., condom use), whereas loss-framed messages were more effective in promoting illness-detecting behaviors (e.g., making an appointment with a doctor to discuss STI testing) (Garcia-Retamero & Cokely, 2011). People receiving negative framed health messages concerning a type of heart disease were more likely to consider taking protective action compared to positive framed health messages (Brown & Gold, 2013). Changes in intentions were greater concerning physical activity when loss-framed messages targeting psychological health were compared with gain-framed messages (Bassett-Gunter, Latimer-Cheung & Martin Ginis, 2013).

A recent study done by Camenga, Hieftje, Fiellin, Edelman, Rosenthal and Duncan (2014) investigated the use of message framing to promote sexual risk reduction in young adolescents. They examined young adolescents’ preference for gain- versus loss-framed images and messages when designing an HIV-prevention intervention to promote delayed sexual initiation with focus groups. The data suggest that young adolescents may prefer a combination of gain- and loss-framing in health

materials to promote reduction in sexual risk behaviors (Camenga et al., 2014). It follows that the effects of message framing are inconsistent, both gain- and loss-framed messages seem to be effective. In general, and according to previous described theories, gain-framed messages have a stronger effect on changing prevention behavior intentions, and loss-framed messages have a stronger effect on changing detection behavior intentions. Although the effect of message framing on the intentions of sexual health behavior might seem relatively small in magnitude, it is important to keep in mind that health behaviors are complex in nature (Gallagher & Updegraff, 2011). Message frame effectiveness has been confirmed in the past, and will be applied to the current study.

Moderators

Moderating factors should be taken into account. Age (Shamaskin, Mikels & Reed, 2010), gender, pre-knowledge (sexually active or not), people's risk perceptions (Hull, 2012), cultural aspects (Yu & Shen, 2013), perceived effectiveness (Hwang, Cho, Sands & Jeong, 2011) and perceived susceptibility to the risk (Hwang, Cho, Sands & Jeong, 2011) have all shown an influence on the effects of message framing. Regulatory Focus will be included as comparative means. In addition, context (rural townships in Limpopo, South Africa) should be taken into account (Akl et al., 2011).

Research question and hypotheses

Message framing has been shown to effect participants' perception, intentions and decision making (Abhyankar, O'connor & Lawton, 2008). Gain-framed appeals tend to be more effective than loss-framed appeals in promoting health-affirming (prevention) behaviors. In contrast, loss-framed messages tend to be more effective than gain-framed appeals in promoting illness-detecting (screening) behaviors.

This study will investigate whether message framing has a positive impact on increasing the intentions of healthy sexual behavior among adolescents. The research question will be: *Is there a difference in sexual risk behavior intentions in rural South African adolescents when providing either gain- or loss-framed messages, considering prevention and detection behavior?* It is hypothesized that the gain-framed message will cause higher intentions on prevention behavior (condom use), than the

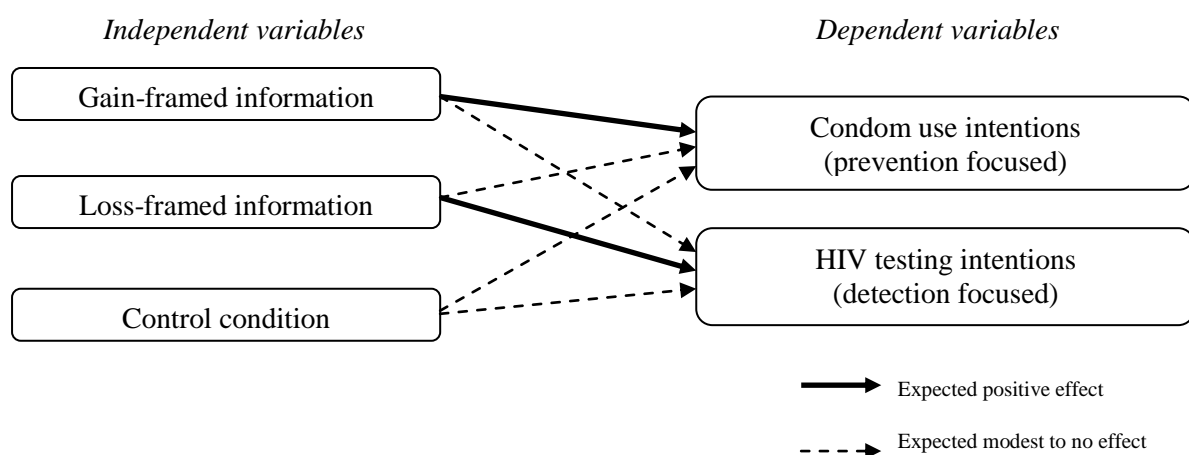
loss-framed message. In addition, it is hypothesized that the loss-framed message will cause higher intentions on detection behavior (HIV testing), than the gain-framed message. Finally, it is hypothesized that some variables will moderate the results. Variables that will be taken into account are: age, grade, gender, sexual history, and Regulatory Focus.

Method

Research design

The current study was part of a larger study in which the CHAMP behavioral change program was reviewed by means of a baseline- and follow-up questionnaire. The current study used a one factor between-subject design (see figure 1 for the overview). An experiment was used to test the theory of message framing best in a specific area. Quantitative data was gathered by means of a questionnaire after a manipulation of the message frame. The research focused on getting information about the influence of message framing on the intentions of sexual risk behavior among a certain population, in this case adolescents living in Limpopo, South Africa.

Figure 1. Study design



Participants

The study was located in and around Dennilton, South Africa. 117 participants were recruited.

Adolescents who both participated in the experiment as well as in the baseline questionnaire were included in the current study (N = 98), 38 male and 59 female. The participants are black adolescents

attending a secondary school. Two schools were involved in this study: Sereme (23.5% of the participants) and FK Tjiane (76.5% of the participants). Those two schools were used as control-schools for CHAMP (no CHAMP intervention was given, only the baseline questionnaire was administered). The three conditions were equally distributed. 37.8% joined the gain frame condition, 34.7% joined the loss frame condition, and 27.6% joined the control condition. Participants were in grade 8 (32.7%; $M = 14.59$ years old; $SD = 1.74$), 9 (36.7%; $M = 15.39$ years old; $SD = 1.61$), and 10 (30.6%; $M = 17.50$ years old; $SD = 1.68$), in the age group of 12 to 20 years old ($M = 15.78$; $SD = 2.04$). The participants obtained parental consent to take part in the study and did not previously participate in the CHAMP program.

In addition, a description of the participants can be made by means of the baseline CHAMP questionnaire items included. To gain a better understanding of the living circumstances of the participants, they were asked “Would you say that the people in your home often, sometimes, seldom or never go without food?”. Nearly half (49%) reported ‘never’, another 42.9% reported sometimes to go without food. In addition, participants were asked how water was supplied to their house. 9.2% of the participants reported to have piped water in their house, 41.8% of the participants reported to get water from taps outside, and 45.9% of the participants reported to have to walk to fetch water ($n = 95$). Participants reported to the question “The age of the head of your household is below 18 years old (15.3%), or above 18 years old (84.7%)”. Additionally participants were asked to report if either their mother or father had died. 69.4% reported that neither of their parents had passed away. 6.1% reported their mother had died, 10.2% reported their father had died and 6.1% reported both their parents had died ($n = 90$) (bearing in mind the average age of the participants; $M = 15.78$; $SD = 2.04$). A staggering amount of 21.4% of the participants reported they did often feel that nobody in their family loved them or thought they were special.

Procedure

School recruitment was done by NCG. The study was conducted during school hours in a classroom setting. Only adolescents with parental consent could participate, so the classrooms had to be filtered out first. The participants were informed by an instructor that they had to make a small test, to disguise

the real purpose of the study. Instructions were given both verbally and in writing. The experiment was executed with the assistance of a Life Skills Facilitator who could assist with any language barriers since the test was in English. Participants were asked to work through the pages from front to back. If the participants had any questions, they could raise their hands so the instructors could help them. After the introduction, each participant received a pen and a stack of papers consisting of three parts: (1) a pretest questionnaire, (2) an experimental or control handout, and (3) a posttest questionnaire. The packets were randomly assigned to the participants. After completing the pretest questionnaire, they were asked to carefully read the handout. Immediately after reading the message, the participants completed a posttest questionnaire that included measures of sexual behavioral intentions. All the answer possibilities on the Likert-scale questions were written out on the blackboard to help participants understand the questions better. There was a time limit of 30 minutes which was imposed in consultation with the school principle. Silence was requested. Influence by fellow students was counteracted by moving the desks apart and by explaining to the students that there were no right or wrong answers. All participants had to finish the questionnaire before they could leave the classroom, this to prevent disruption. After 30 minutes, all questionnaires were collected by the instructors. All participants were thanked for their participation and were given a little token of appreciation. They were allowed to ask questions about the study afterwards.

Measurements

Baseline Questionnaire. The participants in this study also completed the CHAMP baseline questionnaire. Questions were included to get an impression of the status of the participants lives, for example “How is the water supply to your house?”. In addition questions were included considering their sexual health, for example “Have you ever had sex?” (Ndlovu Care Group, 2014) (see Appendix 1 for the overview of the items). The Regulatory Focus Questionnaire (RFQ) of Higgins et al. (2001) measuring message frame dispositions was used as a randomization check. The RFQ is an 11-item measure where participants rate their agreement with promotion and prevention statements on 1 to 5 Likert-type scales (Higgins et al., 2001) (see Appendix 2 for the overview of the items). The Cronbach’s Alpha of .78 indicates that there is internal consistency between the items.

Introductory questions. Six introductory questions queried the background of the participants.

Participants reported their age, gender, grade, student number, date of interview and the name of the school they attend (see Appendix 3 for the overview of the items).

Message frame. The participants were randomly assigned to either one of the experimental conditions or control condition. In the experimental conditions participants received either a gain- or loss-framed informative handout which contains information about sexual risk behavior and HIV. The informative handout has been based on a formal piece of text with information about HIV, extracted from the CHAMP appendix (Ndlovu Care Group, 2013). The control group received a handout based on the original text used by CHAMP. According to guidelines suggested by Rothman and Salovey (1997), and based on research done by Garcia-Retamero and Cokely (2011), the experimental handouts were rewritten into a gain-framed and loss-framed condition, considering the function of the behavior (detection and prevention focused). In all three conditions both detection and prevention behaviors were described, thereby hypothesized that gain-framed information has a more positive effect on prevention focused behavior (condom use), and loss-framed information has a more positive effect on detection focused behavior (HIV testing). The gain-framed message emphasized the gains or benefits of performing the behavior and the loss-framed message emphasized the losses or disadvantages of not performing the behavior (see Appendix 4 for the overview of the different conditions).

Behavioral intentions. A questionnaire directly followed after reading the handout addressing the participant intentions on a specific sexual risk behavior. The questions were based on a study on message framing done by Garcia-Retamero & Cokely (2011). Participants responded to items assessing their sexual risk behavior intentions on a seven-point Likert-scale ranging from 1 (“I have no intentions of doing this” / “Not at all intend to”) to 7 (“I am certain that I will do this” / “Certainly intend to”), behavioral intentions were measured (see Appendix 5 for the overview of the items). A higher score indicates higher intentions to perform sexual behavior. A reliability analysis has been conducted on the test-items. The Cronbach’s Alpha of .86 shows that there is internal consistency between the items.

Manipulation check. After the participants rated their sexual health intentions a manipulation check was conducted to assess whether participants understood the message frame and risk information conveyed in the passage. It has to be taken into account that the participants already scored their sexual health intentions when filling in these questions. Therefore these questions cannot be regarded as valid manipulation check items. Participants responded to four items “The informational piece of text heavily focused on the benefits/ downsides of using a condom/ doing a HIV test”, using a five-point Likert scale (Gainforth & Latimer, 2011) (see Appendix 6 for the overview of the items). A reliability analysis has been conducted on the test-items. The Cronbach’s Alpha of .81 shows that there is internal consistency between the items.

Pre-experiment. Before the questionnaire was conducted in the two schools, a pre-test was conducted. The Life Skill Facilitators were asked to participate in the experiment in order to test the functionality of the items. It became clear that filling in Likert-scale questions could be difficult for some participants because they are not used to doing it. Hence, during the experiment the response options were written out on the blackboard to improve the understanding of the questions.

Data analysis

Several descriptive analyses were executed. Assumptions were checked. In order to compare the three conditions on some demographic factors and baseline CHAMP questions a series of ANOVAs and Chi-square tests were performed. A Kruskal-Wallis Test was conducted to explore the impact of message framing on the comprehension of the message (focusing on benefits and downsides). As main analysis, a Kruskal-Wallis Test was conducted to explore the impact of message framing on sexual health intentions. Correlation analyzes was conducted to trace potential predictor variables. Logistic regression analysis was conducted as exploratory means to assess to what extent the set of predictor variables predicts or explains the sexual risk intentions.

Results

Descriptives

To gain better insight into participants' sexual history, CHAMP questions were included. An imported question included surveyed whether the participants had sex before; "Have you ever had sex?" 37.8% reported 'yes', and 62.2% reported 'no' ($n = 98$). Subsequently the question "Have you ever used a condom" was asked, 29.6% reported 'yes', and 8.2% reported 'no' (59.2% reported 'never had sex') ($n = 95$). "The last time you had sex did you use a condom?" followed in which 23.5% reported 'yes', and 8.2% reported 'no' (66.3% reported 'never had sex') ($n = 96$). In addition, 16.3% of the participants indicated to have more than one sexual partner ($n = 79$). To question the participants' motivation to use condoms, the question "If you use a condom, what is your main reason?" was queried. 18.3% of the participants reported to use condoms to prevent HIV, 8.1% to prevent pregnancy, and 3.1% of the participants reported to use condoms to prevent STIs (67.3% reported 'never had sex') ($n = 95$). To query the participants HIV-testing intentions "Will you test for HIV if it was offered at school or after school?" was asked. 52% reported 'definitely yes', 24.5% reported 'probably yes, 9.2% reported 'probably no', and 12.2% reported 'definitely no' ($n = 96$, $M = 1.81$, $SD = 1.05$).

To gain better insight into participants' sexual knowledge participants were asked questions like; "People can protect themselves from HIV by: always using a condom", 69.4% participants reported "true" ($n = 95$). On a similar question a high percentage of the participants, namely 85.7% agreed with the statement "Using a condom can help prevent HIV/AIDS. In addition, 10.2% stated 'don't know' ($n = 94$). On the statement; "I know how to use a condom" 13.3% strongly agrees, 29.6% agrees, 31.6% disagrees, and another 20.4% strongly disagrees ($n = 93$, $M = 2.62$, $SD = .98$).

Two correlation analyses were conducted. The relationship between the questions measuring condom use intentions and the relationship between the questions measuring HIV-testing intentions was investigated using Spearman correlation coefficient because preliminary analyses revealed that the assumptions of normality and linearity were violated. There was a strong, positive correlation between the variables measuring condom use intentions, $r_s = .72$, $n = 96$, $p = <.001$. As well as between the

variables measuring HIV-testing intentions, $r_s = .62$, $n = 97$, $p = <.001$. Indicating two strong relationships, resulting in two new variables containing the overall mean scores of either condom use intentions or HIV-testing intentions.

Participants scored averagely on the 7-point Likert scale measuring condom use intentions ($n = 96$, $M = 4.10$, $SD = 2.43$). Participants scored slightly higher regarding HIV-testing intentions ($n = 97$, $M = 4.69$, $SD = 2.28$) (see Appendix 7 for a visual distribution).

Randomization check

In order to compare the three conditions on some demographic factors and baseline CHAMP questions, a series of ANOVAs and Chi-square tests (with Yates Continuity Correction) were performed. Preliminary analyses revealed that none of the assumptions were violated, including the assumption of normal distribution and homogeneity of variance. A one-way between-groups analysis of variance was conducted with age ($F(2, 97) = .67$, $p = .52$), HIV prevention knowledge ($F(2, 94) = 1.06$, $p = .35$), condom use skills ($F(2, 92) = .19$, $p = .83$), HIV testing intentions at school ($F(2, 95) = 1.24$, $p = .29$), promotion message frame disposition ($F(2, 88) = .41$, $p = .67$), and prevention message frame disposition ($F(2, 90) = 1.98$, $p = .15$) as dependent variables. There were no statistically significant differences at the $p < .05$ level in scores on the dependent variables for the three conditions.

Chi-square tests for independence indicated no significant association between all the categorical variables measured and message frame ($p > .05$). This applies to interview site, gender, grade, sexual history, perceived family affection, and multiple sexual partners. In addition, Chi-square tests revealed the assumption of 'minimum expected cell frequency' had been violated. According to Fisher's Exact Test no significant association was found between message frame and the categorical variables; food availability, water supply, age head of household, whether or not (half-) orphaned, HIV prevention knowledge, condom use history, recent condom use, and condom use motivation.

Manipulation check

In order to ascertain if participants received the messages in the three conditions differently, four questions were queried. The participants had to rate how they perceived the handout; “The informational piece of text heavily focused on the benefits/ downsides of using a condom/ doing a HIV test”. Two correlation analyses were conducted, to measure the relationship between the two questions measuring to what extent the text was perceived as either focusing on the benefits or on the other hand focusing on the downsides of condom use and HIV-testing. This was investigated using Spearman correlation coefficient because preliminary analyses revealed that the assumptions of normality and linearity were violated. There was a strong, positive correlation between the two variables focusing on the benefits, $r_s = .59$, $n = 98$, $p = <.001$. In addition, there was a moderate positive correlation between the two variables focusing on the downsides, $r_s = .40$, $n = 96$, $p = <.001$. Indicating two strong relationships, resulting in two new variables containing the mean scores focusing on either the perceived benefits or the perceived downsides.

A Kruskal-Wallis Test was conducted to explore the impact of the message frame on the comprehension of the message (focusing on benefits or downsides). There was no statistically significant difference in scores on benefits (control condition, $n = 27$, gain frame, $n = 37$, loss frame, $n = 34$), $\chi^2 (2, n = 98) = .25$, $p = .88$, nor on downsides (control condition, $n = 27$, gain frame, $n = 36$, loss frame, $n = 33$), $\chi^2 (2, n = 96) = .19$, $p = .91$ between the three conditions.

Main Results

To test whether participants’ levels of sexual health behavior intentions among the different versions of the informational pieces of text reliably differed as a function of how the health information was framed, a Kruskal-Wallis test was conducted since the assumption of normal distribution was violated. The test revealed no statistically significant difference in condom use intentions across the three different conditions (control condition, $n = 26$, gain frame, $n = 36$, loss frame, $n = 34$), $\chi^2 (2, n = 96) = 2.37$, $p = .31$, nor on HIV-testing intentions (control condition, $n = 27$, gain frame, $n = 36$, loss frame, $n = 34$), $\chi^2 (2, n = 97) = .15$, $p = .93$. The distribution of scores is shown in table 4.

Table 4. Distribution sexual risk intention answers among message frame conditions

	Condition	N	Mean	SD
Condom use intentions	Control	26	4.31	2.64
	Gain frame	35	3.69	2.30
	Loss frame	34	4.46	2.36
HIV testing intentions	Control	26	4.48	2.34
	Gain frame	35	4.67	2.34
	Loss frame	34	4.83	2.27

Analysis of the distribution reveals that the data on condom use intentions are negatively skewed ($z = -.41$), and significantly negatively kurtotic ($z = -1.77$). Analysis of the distribution reveals that the data on HIV-testing intentions are also significantly negatively skewed ($z = -3.31$), and significantly negatively kurtotic ($z = -2.66$). This suggests the non-normality of the data distribution. Both the Kolmogorov-Smirnov ($p < .001$) and the Shapiro-Wilk ($p < .001$) tests indicate the distribution of condom use intentions and HIV-testing intentions differ significantly from normal. Since the answers on the intention questions were not normally distributed, dichotomous variables were created, with a median split at 4.0 (1.0 – 3.9 non to little sexual health intentions and 4.0 – 7.0 moderate to high sexual health intentions). Allowing logistic regression as statistical analyzing method.

A chi-square test for independence was performed comparing the dichotomized sexual health intention variables and message frame. No significant association between condom use intentions and message frame was found, $\chi^2 (2, n = 96) = .58, p = .75, phi = .07$. A chi-square test for independence also indicated no significant association between HIV-testing intentions and message frame, $\chi^2 (2, n = 97) = .18, p = .91, phi = .04$.

Direct logistic regression was performed by exploratory means to assess the impact of a number of factors on the likelihood that respondents would report their sexual health intentions. No assumptions were violated. The analysis of logistic regression was performed twice, first testing condom use intentions. Correlational analysis had to point out which predictor variables were allowed to be included in the analysis of logistic regression. There was a strong correlation between age $r_s = .21, n = 96, p = .04$, interview site $r_s = .24, n = 96, p = .02$, and grade $r_s = .40, n = 96, p < .001$ compared to condom use intentions. Also, a correlational trend was found between sexual history $r_s = -.19, n = 96, p = .07$, and recent condom use $r_s = -.18, n = 94, p = .08$ compared to condom use

intentions (see appendix 8 for the overview). These variables were used as predictor variables in the analysis of logistic regression. The full model containing all five predictors was statistically significant, $\chi^2 (5, n = 94) = 15.42, p = .01$, indicating that the model was able to distinguish between respondents reporting interest in sexual health behavior, and those who do not. The model as a whole explained between 15.1% (Cox and Snell R square) and 20.3% (Nagelkerke R squared) of the variance in sexual risk intentions, and correctly classified 69.1% of cases. Only one of the independent variables made a unique statistically significant contribution to the model (grade). Grade being the strongest predictor of condom use intentions, recording an odds ratio of 2.19 ($p = .03$). This indicated that participants who were in a higher grade were more than 2 times more likely to report condom use intentions than those who were in a lower grade, controlling for all other factors in the model. Interview site demonstrated a trendwise contribution to the model, recording an odds ratio of 3.14 ($p = .11$). This indicated that participants who went to Sereme were over 3 times more likely to report condom use intentions than those who went to F.K. Tjiane, controlling for all other factors in the model (see appendix 9a for the overview).

Second, the analysis of logistic regression was performed, testing HIV-testing intentions. Correlational analysis had to point out which predictor variables were allowed to be included in the analysis of logistic regression. There was a strong correlation between grade $r_s = .33, n = 97, p = .001$, gender $r_s = -.22, n = 96, p = .03$, and recent condom use $r_s = -.21, n = 95, p = .04$, compared to HIV-testing intentions. Also, a trend of correlation was found between interview site $r_s = .17, n = 97, p = .09$, and sexual history $r_s = -.17, n = 97, p = .11$, compared to HIV-testing intentions (see appendix 8 for the overview). These variables were used as predictor variables in the analysis of logistic regression. The full model containing all five predictors was statistically significant, $\chi^2 (5, n = 94) = 15.60, p < .01$, indicating that the model was able to distinguish between respondents reporting interest in sexual health behavior, and those who do not. The model as a whole explained between 15.3% (Cox and Snell R square) and 21.2% (Nagelkerke R squared) of the variance in sexual risk intentions, and correctly classified 73.4% of cases. Only one of the independent variables made a unique statistically significant contribution to the model. The strongest predictor of HIV-testing intentions was recent condom use, recording an odds ratio of .31 ($p = .03$). This indicated that participants who used a

condom the last time they had sex were over .31 times less likely to report HIV-testing intentions than those who did not use a condom the last time they had sex, controlling for all other factors in the model. Sexual history demonstrated a trendwise contribution to the model, recording an odds ratio of 4.68 ($p = .11$). This indicated that participants who had sex before were over 4 times more likely to report HIV-testing intentions than those who never had sex before, controlling for all other factors in the model (see appendix 9b for the overview).

Discussion

The current study investigated whether there are differences in sexual risk behavior intentions in adolescents among different information framing conditions. No significant differences were found between the three conditions (neither on condom use intentions nor HIV-testing intentions). It was hypothesized that gain-framed information has a more positive effect on adolescents' sexual risk behavior intentions, considering prevention intentions (condom use), than loss-framed information. These expected results were not found. A negative trend even occurred. In addition it was hypothesized that loss-framed information has a more positive effect on adolescents' sexual risk behavior intentions, considering detection intentions (HIV-testing), than gain-framed information. Participants in the loss-framed condition scored a fraction higher on HIV-test intentions than participants in the gain-framed condition. Some previous research, as discussed above, found some results which are in contrast with the hypotheses. Current research findings are unfortunately not significant in any direction. The non-significant scores on the manipulation items suggest the ineffectiveness of the message frame. Previous studies found positive message framing effects, its effectiveness has been proven many times (Rothman & Salovey, 1997).

It was hypothesized that some variables could have a moderating effect on the sexual risk intention levels. With reference to the randomization check, no statistically significant differences in scores on the possible moderating variables were found for the three conditions (including promotion- nor prevention focus disposition). Direct logistic regression was performed by exploratory means to assess the impact of a number of factors on the likelihood that respondents would report their sexual health intentions. Grade was found as the strongest predictor of condom use intentions, indicating that

participants who were in a higher grade were more likely to report condom use intentions than those who were in a lower grade. An explanation given to declare why grade act as a predictor is probably related to the cognitive level of the participants which influences the research outcomes. This also explains why age does not act as a moderator while grade does (there are different age groups per grade). Interview site demonstrated a trendwise contribution to the model, indicating that participants who went to Sereme were more likely to report condom use intentions than those who went to F.K. Tjiane. This can indicate the importance of location or being part of a certain group, since the two schools were approximately a 30 minute drive apart. Recent condom use was found as the strongest predictor of HIV-testing intentions, indicating that participants who used a condom the last time they had sex were less likely to report HIV-testing intentions than those who did not use a condom the last time they had sex. Sexual history demonstrated a trendwise contribution to the model, indicating that participants who had sex before were more likely to report HIV-testing intentions than those who did not have sex before. The general idea of a relative high HIV transmission risk among people who practice sex is being recognized and confirmed. Whereby participants who practice safe sex are less likely to do a HIV-test.

A possible explanation for not finding any significant differences between the conditions on sexual risk intentions is that the information pieces of text did not meet the criteria Rothman and Salovey (1997) devised. The lack of significant results may be due to an insufficient depth of the message, the message cannot be properly integrated into an individual's mental representation of the health issue. To make sure the health information was attended to, the information piece of text was kept relatively short, in retrospect maybe too short. Also the frame advocated by the message needs to be accepted by the perceiver and the frame has to motivate behavior only to the extent that a person's perception of the recommended behavior is appropriate for the adopted frame. A second possible explanation for not finding any significant results is that the participants did not pay as much attention to the information piece of text as they were expected to. This might be explained by the cognitive level of the participants. During the CHAMP interventions which were delivered at representative schools, it became clear that the level of English was not as high as expected. The level of English has been overestimated. The majority of the participants had trouble reading and understanding English. It

is expected that the participants would have responded differently if the experiment was in their native language. Additionally, completing the Likert-scale questions caused some problems. The participants struggled to understand how to answer the questions. This is demonstrated by how the intention items were completed, the item scores were totally not normally distributed, which may indicate a misunderstanding on how to respond. This miscomprehension probably influenced the current research negatively. Dichotomous variables were created to eliminate problems concerning normal distribution. Unfortunately still no significant differences were found between the conditions in sexual health intentions. In addition the level of attention could have been influenced by the time of day the experiment was held. The experiment was held around 1 p.m., which means that the concentration levels of the participants were low since it was almost the end of the school day (2 p.m.) which could have negatively influenced their responsiveness. Both could affect the impact of message framing as the requirement of an effective message frame is that the message is comprehended as it was intended to be.

Further limitations of current research include that the study is based on sexual risk behavior intentions instead of actual behavior. This is a big downside since actual behavior is a more powerful indication of behavioral change than mere behavior change intentions. In addition, test results were based on reported behavior, depending on the willingness of participants to answer, which can be biased through social desirability. Actual condom use and HIV-testing are both more or less impossible to measure in real life. Therefore sexual risk intentions are a good way to approach sexual health behavior, but the distinction from actual behavior should always be taken into account. The lack of significant results may also be caused by message framing having an indirect, delayed or perhaps even long term effect on sexual risk behavior intentions which is why the expected results were not found. Finally, participants indicated HIV is not a well taught topic. Participants stated that they have never discussed this kind of information at school, which was being confirmed during the CHAMP interventions (where adolescent for example did not appear to have a good comprehension of HIV transmission risks). During the CHAMP interventions it became clear that HIV is not considered as a terrible disease. People indicated you can take medication and live a long life even when HIV-positive. Future perspectives seem not to be a very high priority. Sexual health behavior seems to be driven by

future perspectives. This research focused on adolescents, who often only think about the present, in which HIV prevention is not being considered as important.

In the absence of significant results identified in this study, more research is clearly needed. Message framing aimed to change sexual health behavior, still provides many research opportunities. The lack of results can either be attributed to failure of the measurement scales or failure of the message frame manipulation, or both. Future research is needed to investigate sexual risk behavior intentions among adolescents living in rural areas in South Africa. Future research should first of all take previously discussed limitations into account. Language barriers should be avoided, perhaps by translating the questions and translating the information pieces of text to the participants first language, since one of the requirements of a functional message frame is that the information is well understood. Likert-scale items should be avoided since participants struggled to understand these. In addition, the questions should have been numbered, some participant did not answer all the questions, this could be counteracted by numbering questions clearly. Also the different answer possibilities of the Likert-scale questions should have been written out on paper to be better comprehended by the participants. In future research the effects of message framing can best be investigated by dividing message framing not only according to gain or loss-framed messages, but also to make a division between prevention/detection behavior. Where there will be used 4 different message frames (gain-framed condom use; gain-framed HIV-testing; loss-framed condom use; loss-framed HIV-testing), whereby intermediating effects will be controlled for. The messages should be best subjected to a pilot study in order to test its effectiveness. In addition, it might be useful to use people in a higher grade, as results show people in grade 10 scored the highest on their sexual health intentions, this might be explained because they understood the information and questions better or by their higher level of maturity. According to the results many students are not sexually active yet. This might bias the results, because if the participants are not sexually active yet, they might not be interested in thinking about their sexual health behavior intentions, therefore the future studies should be implemented using an older, more sexually active group of participants. Current study only investigated condom use and HIV-testing intentions, no other outcomes of sexual health behaviour were investigated. The results might be more trustworthy if they were evaluated after a longer period of time and perhaps at several

moments in time. Providing information about sexual health behavior can make them aware of their possible sexual risk behavior where they can think about and act along in the future. Long-term effects can be accomplished by a follow-up study. Additionally, future research should use reliable and valid measures and examine effects on a wide range of sexual behaviour outcomes.

It can be concluded that current research failed to answer the research question: *Is there a difference in the sexual risk behavior intentions in rural South African adolescents when providing either gain- or loss-framed messages, considering prevention and detection behavior?* To answer this question, hypotheses were formulated, of which the results are presented above. Looking at these results in combination with the research question it could be stated that either the manipulation of the message frame failed (probably due to language problems) or the items used did not cover the construct that had to be measured (probably due to misunderstanding of Likert-scale items), since no differences were found between the different conditions. Previous research has shown that message framing can be effective considering changing health behavior intentions, therefore the conclusion has to be made that current research has not fulfilled the requirements of testing the effectiveness of message framing on sexual health behavior intentions.

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Appendix 1

Table 1. Baseline questionnaire items

Q9	Would you say that the people in your home often, sometimes, seldom or never go without food? <i>Choose 1 answer</i>	Often	1		
		Sometimes	2		
		Seldom	3		
		Never	4		
Q13	Water supply to your house	Piped water in the house	1		
		Taps outside	2		
		Walk to fetch water	3		
Q17	The age of the head of your household is	Below 18 years	1		
		Above 18 years	2		
Q21	Have either your mother or father died?	Neither	1		
		Mother	2		
		Father	3		
		Both	4		
Q30	Did you often feel that... Nobody in your family loved you or thought you were special?	Yes	1		
		No	2		
Q43	Using a condom can help prevent HIV/AIDS	True 1	False 2		Don't know 3
Q51	People can protect themselves from HIV by: always using a condom	True 1	Probably true 2	Probably false 3	False 4
Q58	I know how to use a condom	Strongly agree 1	Agree 2	Disagree 3	Strongly disagree 4
Q112	Will you test for HIV if it was offered at school or after school?	Definitely yes 1	Probably yes 2	Probably no 3	Definitely no 4
Q127	Have you ever had sex?	Yes			1
		No			2
Q132	Have you ever used a condom?	Yes			1
		No			2
		Never had sex			3
Q198	The last time you had sex did you use a condom?	Yes			1
		No			2
		I never had sex			3
Q199	If you use a condom, what is your main reason?	To prevent HIV			1
		To prevent pregnancy			2
		To prevent sexually transmitted infections			3
		I never had sex			4
Q202	Do you have more than one sexual partner?	Yes			1
		No			2

Appendix 2

Table 2. Regulatory Focus questionnaire

This set of questions asks you **HOW FREQUENTLY** specific events actually occur or have occurred in your life. Please indicate your answer to each question by circling the appropriate number below it.

		Never/seldom	Sometimes	Very often		
1	Compared to most people, are you typically unable to get what you want out of life?	1	2	3	4	5
2	Growing up, would you ever “cross the line” by doing things that your parents would not tolerate?	1	2	3	4	5
3	How often have you accomplished things that got you "psyched" to work even harder?	1	2	3	4	5
4	Did you get on your parents’ nerves often when you were growing up?	1	2	3	4	5
5	How often did you obey rules and regulations that were established by your parents?	1	2	3	4	5
6	Growing up, did you ever act in ways that your parents thought were objectionable?	1	2	3	4	5
7	Do you often do well at different things that you try	1	2	3	4	5
8	Not being careful enough has gotten me into trouble at times.	1	2	3	4	5
9	When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do.	1	2	3	4	5
10	I feel like I have made progress toward being successful in my life.	1	2	3	4	5
11	I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them.	1	2	3	4	5

Appendix 3

Table 3. Introductory questions

Study identification number	[] [] [] [] [] []
Date of interview	<u> </u> <u> </u> / <u> </u> <u> </u> / 2014 D D M M
Interview site (name of school)	
Age	<u> </u> years old
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
In what grade are you this year?	<input type="checkbox"/> Gr 8 <input type="checkbox"/> Gr 9 <input type="checkbox"/> Gr 10

Appendix 4

Gain-framed message

General information about HIV

HIV stands for the Human Immunodeficiency Virus. This is what people catch and transmit to others. People with HIV in their body go on to become sick with AIDS unless they have treatment. They do not “catch” AIDS. AIDS only develops after HIV has stayed in the body for a long time (usually years). AIDS stands for Acquired Immune Deficiency Syndrome. The immune system is the body’s defense against infections. Immune deficiency means that the immune system is weakened and cannot defend properly. The body’s defenses are no longer able to fight the disease and the person becomes sick. Not everyone who has HIV develops AIDS. Antiretroviral therapy prevents a person from getting AIDS, also a small number of people who are infected with HIV have it for many years without developing AIDS.

Sexually Transmitted Infection (STI’s) are infections (diseases) that are spread through sexual contact. HIV is also considered as a STI. Most HIV infections in the world are caused by unprotected sex. Sexual behavior is therefore a crucial factor within new HIV infection rates. Risky sexual behaviors could increase the chance of contracting or transmitting HIV. To counteract new HIV infections one could adopt more sexual healthy behaviors. Which can include: condom use and HIV-testing.

Condom use

Condoms are important because a condom will stop a man’s sperm or other fluids (semen) coming into contact with a woman’s vaginal fluids. So she will not be able to get pregnant and, if either the man or the woman has HIV, or another STI, it cannot be passed between them. Using condoms (practice safer sex) helps to prevent against HIV transmission. By having unprotected sex with a person infected with HIV, you put yourself at risk of becoming infected. This risk will decrease when you have one sexual partner. The only way to prevent catching HIV is to practice safer sex. Using condoms helps to prevent a HIV-infection.

Doctors strongly recommend that everyone should use condoms when engaged in sexual intercourse. By using condoms in all your sexual encounters, you will feel the peace of mind that comes with knowing about your health, and will feel relaxed and comfortable in your daily life. Partners can use a male or female condom to prevent sexual transmission. If you use condoms in all your sexual encounters that involve sexual intercourse, it is most likely that you will not suffer sexual health problems.

Experts believe that many STIs do not show any symptoms for a long time. Therefore, by using condoms in all sexual encounters, you will look after your own health. Most crucially, you will reduce substantially the chance of contracting a STI (including preventing HIV infection), especially if you have a sexual encounter with an infected partner.

HIV-testing

You can’t tell if a person has HIV just by looking at them, there are plenty of people who look healthy and have HIV. To be sure if you don’t have HIV is to do a blood test. If you frequently

conduct screening tests, you can detect whether you suffer a STI (including HIV). Knowing your status will increase your sexual health. If you want to be sure you do not have HIV you have to do a test three months after the last time when you could have been exposed to HIV by unsafe sex or another type of exposure.

Doctors strongly recommend that everyone makes at least one appointment to do a screening test to detect STI's (including HIV) every year. By conducting screening tests for STIs frequently, you will feel the peace of mind that comes with knowing about your health, and will feel relaxed and comfortable in your daily life. Conducting a screening test will also increase the chance of detecting STIs on time. Most crucially, you will also increase substantially the chance of receiving an effective treatment (if you suffer a STI), especially if the screening is conducted when the disease is at an early stage. Screening regularly is therefore very important.

Conducting screening tests substantially increases the chance of detecting STIs (including HIV). You only know whether you are infected with HIV if you have a test, and if it is negative it is best to test often and practice safe sex (using a condom) to be sure you remain uninfected. If it is positive counseling and treatment should be started as soon as possible. By knowing your status you can benefit from the advantages associated with knowing your status. It is important to take responsibility to protect yourself and others from the virus: it is not just the responsibility of those who know they are HIV-positive to make sure they do not spread it.

Conclusion

Sexual healthy behaviors (e.g. condom use and HIV-testing) increases the chance of a healthy life.

General information about HIV

HIV stands for the Human Immunodeficiency Virus. This is what people catch and transmit to others. People with HIV in their body go on to become sick with AIDS unless they have treatment. They do not “catch” AIDS. AIDS only develops after HIV has stayed in the body for a long time (usually years). AIDS stands for Acquired Immune Deficiency Syndrome. The immune system is the body’s defense against infections. Immune deficiency means that the immune system is weakened and cannot defend properly. The body’s defenses are no longer able to fight the disease and the person becomes sick. Not everyone who has HIV develops AIDS. Antiretroviral therapy prevents a person from getting AIDS, also a small number of people who are infected with HIV have it for many years without developing AIDS.

Sexually Transmitted Infection (STI’s) are infections (diseases) that are spread through sexual contact. HIV is also considered as a STI. Most HIV infections in the world are caused by unprotected sex. Sexual behavior is therefore a crucial factor within new HIV infection rates. Risky sexual behaviors could increase the chance of contracting or transmitting HIV. To counteract new HIV infections one could adopt more sexual healthy behaviors. Which can include: HIV-testing, and condom use.

Condom use

Condoms are important because a condom will stop a man’s sperm or other fluids (semen) coming into contact with a woman’s vaginal fluids. Failing to use a condom will not prevent pregnancy, and if either the man or the woman has HIV, or another STI, it can be passed between them. Consequently; failing to use a condom will not prevent against HIV transmission.

By having unprotected sex with a person infected with HIV, you put yourself at risk of becoming infected. This risk will increase when you have multiple sex partners. The only way to prevent yourself from not catching HIV is to practice safer sex (like using a condom). Failing to use condoms increases your risk of getting infected with HIV.

Doctors strongly recommend that everyone should use condoms when engaged in sexual intercourse. By failing to use condoms in all your sexual encounters, you will not feel the peace of mind that comes with knowing about your health, and will not feel relaxed and comfortable in your daily life. Partners can use a male or female condom to prevent against sexual transmission. If you fail to use condoms in all your sexual encounters that involve sexual intercourse, it is most likely that you will suffer severe health symptoms.

Experts believe that many STIs do not show any symptoms for a long time. Therefore, by not using condoms in all sexual encounters, you will not look after your own health. Most crucially, you will also increase substantially the chance of contracting a STI (including HIV), especially if you have a sexual encounter with an infected partner.

HIV-testing

You can’t tell if a person has HIV just by looking at them, there are plenty of people who look healthy and have HIV. The only way to be sure if you have HIV is to do a blood test. If you fail to conduct screening tests, you can’t detect whether you suffer a STI (including HIV). Not

knowing your status will decrease your sexual health. If you want to be sure if you have HIV you have to do a test three months after the last time when you could have been exposed to HIV by unsafe sex or another type of exposure.

Doctors strongly recommend that everyone makes at least one appointment to do a screening test to detect STI's (including HIV) every year. By not conducting a screening test for STIs frequently, you will not feel the peace of mind that comes with knowing about your health, and will not feel relaxed and comfortable in your daily life. Failing to conduct a screening test will also decrease the chance of detecting STI's on time. Most crucially, you will also reduce substantially the chance of receiving an effective treatment (if you suffer a STI). Failing to do a screening regularly will decrease your chance of a healthy life. Similarly, you will put the people you love at risk of losing you or having to take care of you while you are sick.

Not conducting screening tests substantially reduces the chance of detecting STIs (including HIV). If you don't get yourself tested on HIV, you will never know if you are infected with HIV. Knowing your status is important because if it is negative you need to test often and practice safe sex to be sure you remain uninfected. If it is positive counseling and treatment should be started as soon as possible. By not knowing your status you will miss out on these advantages associated with knowing your status. It is important to take responsibility to protect yourself and others from the virus: it is not just the responsibility of those who know they are HIV-positive to make sure they do not spread it.

Conclusion

Sexual risk behaviors (e.g. having unsafe sex and don't test for HIV) increases the chance of contracting or transmitting HIV.

Control condition

General information

HIV stands for the Human Immunodeficiency Virus. This is what people catch and transmit to others. People with HIV in their body go on to become sick with AIDS unless they have treatment. They do not “catch” AIDS. AIDS only develops after HIV has stayed in the body for a long time (usually years). AIDS stands for Acquired Immune Deficiency Syndrome. The immune system is the body’s defense against infections. Immune deficiency means that the immune system is weakened and cannot defend properly. The body’s defenses are no longer able to fight the disease and the person becomes sick. Not everyone who has HIV develops AIDS. Antiretroviral therapy prevents a person from getting AIDS, also a small number of people who are infected with HIV have it for many years without developing AIDS.

Sexually Transmitted Infection (STI’s) are infections (diseases) that are spread through sexual contact. HIV is also considered as a STI. Most HIV infections in the world are caused by unprotected sex. Sexual behavior is therefore a crucial factor within new HIV infection rates. Risky sexual behaviors could increase the chance of contracting or transmitting HIV. To counteract new HIV infections one could adopt more sexual healthy behaviors. Which can include: HIV-testing, and condom use.

Condom use

Condoms are important because a condom will stop a man’s sperm or other fluids (semen) coming into contact with a woman’s vaginal fluids. So she will not be able to get pregnant and, if either the man or the woman has HIV, or another STI, it cannot be passed between them.

By having unprotected sex with a person infected with HIV, you put yourself at risk of becoming infected. This risk will increase when you have multiple sex partners. The only way to be sure you do not catch HIV is to practice safer sex; to use a condom when having sex. Partners can use a male or female condom to protect against sexual transmission. Doctors recommend that everyone should use condoms when engaged in sexual intercourse. Experts believe that many STIs do not show any symptoms for a long time. Using condoms can protect you from contracting or transmitting STI’s (including HIV).

HIV-testing

You can’t tell if a person has HIV just by looking at them, there are plenty of people who look healthy and have HIV. The only way to be sure if a person has HIV is to do a blood test. If the test is “positive”, a person has HIV. If it is “negative” it means a person probably doesn’t has HIV. If we want to be sure we do not have HIV we have to have a test three months after the last time when we could have been exposed to HIV by unsafe sex or another type of exposure.

Doctors recommend that everyone makes at least one appointment to do a screening test to detect STI’s every year. We only know whether we ourselves are infected with HIV if we

have a test, and if it is negative we need to test often and practice safe sex to be sure we remain uninfected. If it is positive counseling and treatment should be started as soon as possible. It is important that we take responsibility to protect ourselves and others from the virus: it is not just the responsibility of those who know they are HIV-positive to make sure they do not spread it.

Conclusion

Sexual healthy behaviors (e.g. HIV-testing and condom use) protects against contracting or transmitting HIV.

Appendix 5 – Sexual health behavior intention items

Please respond to the following questions. Please remember there are no right or wrong answers here.

On a scale of 1 to 7, with 1 being 'I have no intentions of doing this' and 7 being 'I am certain that I will do this', rate the following statements (**circle one number for each statement, choose 1, 2, 3, 4, 5, 6, or 7**):

	I have no intentions of doing this			Neutral		I am certain that I will do this	
If I am going to have sex, I would use a condom	1	2	3	4	5	6	7
If I have unsafe sex, I intend to do a HIV test	1	2	3	4	5	6	7

On a scale of 1 to 7, with 1 being 'Not at all intend to' and 7 being 'Certainly intend to', rate the following statements (**circle one number for each statement, choose 1, 2, 3, 4, 5, 6, or 7**):

	Not at all intend to			Neutral		Certainly intend to	
I intend to use a condom the next time I have sex	1	2	3	4	5	6	7
I intend to do a HIV test if I have had unprotected sex	1	2	3	4	5	6	7

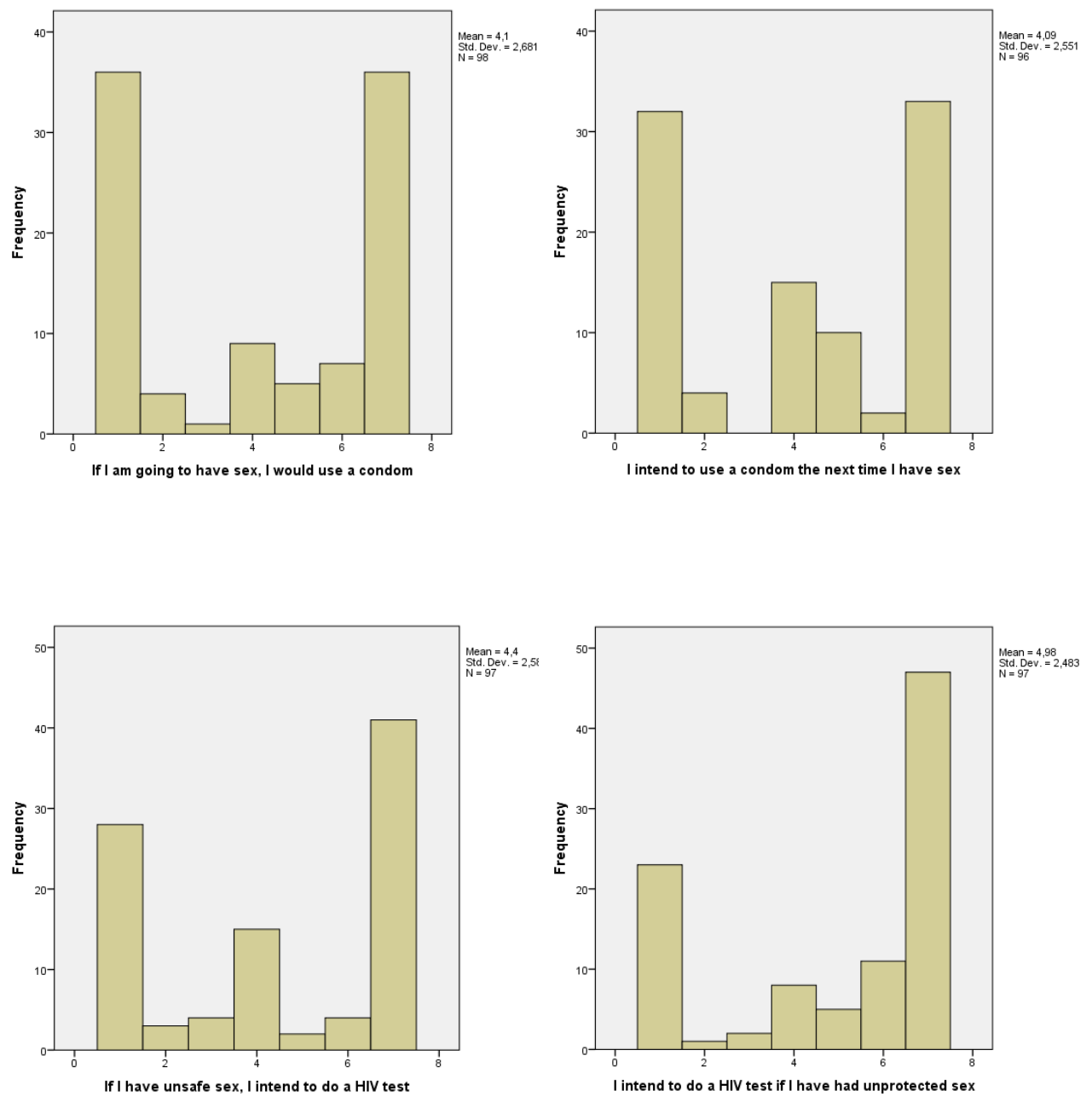
Appendix 6 - Manipulation check items

Please respond to the following questions about how you have perceived the previous informational piece of text. On a scale of 1 to 5, with 1 being 'Not at all' and 5 being 'Very much', rate the following statements (**circle one number for each statement, choose 1, 2, 3, 4, or 5**):

	Not at all		Neutral		Very much
The informational piece of text heavily focused on the <i>benefits</i> of using a condom	1	2	3	4	5
The informational piece of text heavily focused on the <i>benefits</i> of doing a HIV test	1	2	3	4	5
The informational piece of text heavily focused on the <i>downsides</i> of using a condom	1	2	3	4	5
The informational piece of text heavily focused on the <i>downsides</i> of doing a HIV test	1	2	3	4	5

Appendix 7

Figure 2. Distribution scores on sexual health behavior intention items



Appendix 8

Table 5. Correlation matrix (Spearman's rho)

		Condom use intentions	HIV- testing intentions	Interview site	Age	Gender	Grade	Promo- tion	Preven- tion	Q58	Q127	Q198	Q202
Condom use intentions	Pearson Correlation	1,000	,655**	,240*	,207*	-,143	,400**	-,039	,000	-,058	-,186	-,180	-,130
	Sig. (2-tailed)		,000	,018	,043	,167	,000	,719	1,000	,584	,070	,082	,261
	N	96	95	96	96	95	96	87	89	91	96	94	77
HIV-testing intentions	Pearson Correlation	,655**	1,000	,173	,113	-,223*	,327**	,045	-,112	-,121	-,165	-,209*	-,150
	Sig. (2-tailed)	,000		,090	,270	,029	,001	,674	,293	,252	,105	,042	,189
	N	95	97	97	97	96	97	88	90	92	97	95	78

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Appendix 9

Table 6. Outcomes Logistic Regression analysis

a. Condom use intentions

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Age	-,141	,144	,959	1	,328	,869	,656	1,151
School	1,144	,713	2,575	1	,109	3,140	,776	12,703
Grade	,786	,357	4,842	1	,028	2,194	1,090	4,418
Q127	,123	,797	,024	1	,878	1,131	,237	5,394
Q198	-,508	,453	1,253	1	,263	,602	,248	1,464
Constant	-4,857	3,111	2,438	1	,118	,008		

b. HIV-testing intentions

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Grade	,466	,339	1,886	1	,170	1,594	,820	3,099
Gender	-,771	,526	2,150	1	,143	,463	,165	1,296
Q198	-1,161	,522	4,946	1	,026	,313	,113	,871
School	,943	,807	1,364	1	,243	2,566	,528	12,485
Q127	1,543	,951	2,634	1	,105	4,681	,726	30,184
Constant	-2,973	3,387	,771	1	,380	,051		