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Review article

Changing adolescents' sexual behaviour: perceived risk, self-efficacy and anticipated regret

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Abstract

This article focuses on determinants of adolescent AIDS-related behaviour. First, we will focus on the perception of risk for AIDS and possible optimistic biases in perceived risk. The behavioural consequences of optimism or perceived invulnerability will be briefly discussed. Next, we will focus on other determinants of sexual risk behaviour, i.e. self-efficacy and anticipated regret. Gender differences in the predictive power of these factors will be discussed. Finally, we will summarize the results of a series of studies investigating the role of anticipated regret as a determinant of adolescent sexual risk behaviour. The possible contribution of stressing anticipated regret in prevention programs aiming adolescents to adopt safer sex practices will be discussed.

Keywords: Adolescents; Sexual behaviour; AIDS related behaviour; Perception of risk; Optimistic biases

1. Introduction

Public information campaigns are essential in reducing the impact of the AIDS epidemic. Both large scale public campaigns and smaller scale efforts focusing on specific groups (for instance in community centers and classrooms) could play a key role in changing adolescents' sexual practices. A number of authors argued that adolescents should be one of the primary target groups of these communicative efforts. The major reason is that information and education is likely to be most influential when people are in the process of developing their own sexual behaviour and

preferences. In other words, education in the teenage years, before patterns of sexual behaviour have been firmly established, could play an important role in preventing dangerous life-styles [1-7].

Recent studies suggest only marginal changes in adolescents' sexual behaviour. For instance, Kegeles et al. [6] studied adolescents in San Francisco and concluded that the perception that condoms prevent sexually transmitted diseases (STDs) and AIDS is high. Moreover, the value and importance attached to avoiding STDs and AIDS also remained high, but these views were not related to increased intentions to use condoms. Other studies [4,8] report only limited knowledge about the issue of AIDS among adolescents. There are indications that adolescents in metropolitan areas with a relatively high incidence of AIDS are at increased

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risk of infection with HIV [9,10]. Other findings confirm the objective danger for adolescents. For instance, between February 1989 and February 1990, the number of adolescent AIDS cases increased by 40% in the USA, and many of the cases were from six large urban centers [10,11].

A number of studies indicate that the perception of health risks tends to be optimistically biased [12-15]. Although personal perception of health risks is expected to play a major role in models of preventive health behaviour, such as the Health Belief Model [16] and Protection Motivation Theory [17], there has been only limited research on the antecedents of the perception of personal health risks and the consequences of perceived risk for preventive health behaviour. First we will discuss biased risk judgments and relate these to preventive health behaviour. Next, we will discuss other determinants of preventive health behaviour and focus on the possible role of self-efficacy and anticipated regret and worries. Finally, we will briefly summarize our own findings, concerning a simple intervention based on anticipated regret and worries, and its effects on preventive health behaviour.

2. The appraisal of personal health risks

2.1. Cognitive biases

Most research investigating the factors that contribute to biased risk judgments focuses on cognitive biases underlying erroneous probability estimates. One of the heuristics leading to erroneous risk appraisal is 'cognitive availability' [18]. The more available a specific risk in one's memory (for example due to personal experience or the vividness of the risk), the more likely that one will overestimate the risk.

Assessing one's personal risk for HIV-infection tends to be highly complicated and unreliable. Knowledge about transmission routes is essential, but quite often the relevant risk factors remain concealed (for instance, lack of knowledge about the behavioural history and serostatus of sexual partners). Even those who are likely to be relatively well-informed about AIDS-risks often err in their subjective appraisal of the riskiness of their own behaviour. For instance, Bauman and Siegel

[19] found that gay men practicing hazardous sex tend to underestimate the risks associated with their behaviours. Joseph et al. [20] also provided evidence that those high at risk tend to deny that they are at risk. These misappraisals of the riskiness of one's sexual practices can result in underestimating one's personal susceptibility to HIV infection. The difficulty of adequate risk appraisals is further enhanced by the fact that sexual partners do not always provide correct information about their history [21].

Perception of invulnerability is related to what Weinstein [22] called 'unrealistic optimism'; he argued that people tend to think they are relatively invulnerable and that others are more likely to experience negative health consequences than oneself. At an individual level each person could be right in assuming that his or her risks are smaller than those of comparable others. On a group level, however, the term 'unrealistic optimism' could be correct; if nearly all people in a specific population rate their risk below average, quite a few of them must be wrong.

Optimistic risk appraisal has been found for a wide variety of negative events [15,23]. This optimism has also been obtained for adolescents' perception of AIDS-related risks [24-26]. Other studies also indicate that the majority of adolescents do not feel susceptible to AIDS [1,8]. Not surprisingly, reducing the possible underestimation of one's susceptibility to AIDS-related risks is one of the major aims of health education programs. Many of the prevailing media campaigns designed to persuade those at risk to adopt safer sex practices, focus on increasing the awareness that certain sexual practices are risky, and stress the vulnerability of people who do not practice safe sex.

What are the possible causes of optimistic biases? The literature focuses on both cognitive and motivational processes underlying optimistic risk appraisals. Some of these have also been investigated in the context of adolescents' optimism about AIDS-related risks. Cognitive factors underlying optimism include perceived control, egocentric biases, personal experience, and stereotyped beliefs. Motivational factors include self-esteem maintenance and defensive coping.

Perceived control. Optimism tends to be greater for those risks judged to be under personal control [13]. This relation between perceived controllability and optimism is confirmed by research on risk appraisals in the context of AIDS showing that perceived control over the possibility of an HIV infection is significantly related to optimism [27]. In other words, respondents who thought they could control this specific risk were also more optimistic about their chances to get infected with HIV as compared with others of their own gender and age. Bauman and Siegel's findings [19] indicate that illusory perceived control is also related to optimistic risk appraisals. Their findings showed that the belief in ineffective risk-reducing practices can affect risk appraisals and result in a false sense of security.

Egocentric bias. Another factor that could lead to optimism is what Weinstein [22] termed an egocentric bias. When people are asked to assess health risks for themselves and others, they simply have more knowledge about their own protective actions than those of others. It seems that people tend to focus on personal actions reducing their own risks, and tend to forget personal actions or circumstances that increase their risks. Generally, people also have more knowledge about their own precautionary actions than those of others. All in all, people seem to give themselves credit for factors that reduce their own risk, but often forget to assess whether other people might have as many or even more factors in their favour.

Personal experience. Weinstein [13,22] concluded that lack of previous personal experience with a specific health risk tends to increase unrealistic optimism about that risk. Personal experience is a powerful stimulus to action [28], and tends to be relatively vivid as compared with statistical information about risks. Possible negative consequences for health and well-being which have been experienced more directly tend to result in less optimistic risk appraisals.

Stereotyped beliefs. Another factor that could produce unrealistic optimism is related to stereotypical or prototypical judgment. People might have a relatively extreme image of those suffering from specific diseases. This extreme image or prototype is unlikely to fit one's self-image, hence the

conclusion that the risk does not apply to oneself but primarily to others. This 'extreme prototype' explanation seems especially relevant in the context of AIDS. Evidence for the effects of stereotyped beliefs is provided by van der Pligt, who showed that AIDS risks are firmly associated with specific groups [29]. More extreme consequences of stereotyped beliefs are provided by Hamilton [30], who showed that the tendency of the (USA) news media to link AIDS with homosexuality without referring to gender, resulted in a significant overestimation of the risks of lesbians by the general public.

2.2. Motivational factors

The literature also mentions two motivational explanations for optimistic biases in the appraisal of personal health risks. The first is self-esteem maintenance, the second, defensive coping.

Self-esteem maintenance. Generally, people seem to think that their actions, life-style and personality characteristics are more advantageous than those of their peers. This mechanism is likely to play a role in the perception of AIDS-related risks. A high-risk life-style would imply that we are ignorant of what we ought to do or are simply unable to exercise self-control. Both are related to a person's ability to cope effectively with life demands and have clear-cut links to self-esteem.

Defensive coping. Taylor and Brown [15] argue that exaggerated perceptions of control and unrealistic optimism are illusions that can help the individual to adapt successfully to threatening events. Gladis et al. [24] investigated the role of motivated denial in high school students' perception of AIDS-related risks. Their findings showed that students with a dispositional tendency to deny threat are more likely to underestimate their risk of contracting AIDS. Overall, students classified as 'repressors' revealed a negative correlation between their perception of risk and degree of behavioural risk. Thus, repressors tended to take less preventive action than non-repressors.

2.3. Perceptions, absolute risk, comparative risk, intended and actual behaviour

All in all there is an extensive literature about the possible determinants of optimism in perceived

risk. Both cognitive and motivational factors (e.g. perceived control, defensive denial) have also been investigated in the context of AIDS risk. The basic rationale for research on the phenomenon of unrealistic optimism is that this bias could make people think that they are relatively invulnerable which could undermine their motivation to take preventive action. It seems essential, however, to make a distinction between absolute risk and comparative risk. Comparative risk assessments tend to be optimistic. The literature suggests that optimistic comparative risk appraisal could hinder behavioural change and preventive action. There is, however, hardly any empirical evidence that comparative risk appraisal is related to preventive health behaviour [23]. Perceived absolute risk of AIDS, on the other hand, tends to be too high. Thus, absolute risk appraisals tend to be pessimistic when compared with objective risk assessment based on epidemiological research. This overestimation is most likely caused by the severity of the consequences and the attention paid to AIDS in the media. Thus, when adolescents are asked to estimate their chances of getting AIDS their estimates are higher than estimates based on epidemiological findings [23]. A crucial question is whether perceived (absolute) risk or vulnerability is related to preventive health behaviour.

There is some evidence showing that perceived risk predicts preventive health behaviour [23,31]. Gladis et al. [24] found that perceived risk was a significant predictor of the intention to change AIDS-risk behaviours in a group of high-school students. A cautious note seems in order, however. Perceived risk seems to play a relatively modest role as a determinant of actual (safe) behaviour as opposed to behavioural intentions to change AIDS-risk behaviours. van der Velde et al. [32] attempted to relate perceived risk and optimism to actual behaviour over a 4-month time span. Their study focused on visitors to an STD clinic in Amsterdam. Over 500 subjects (largely prostitutes and their visitors) participated in the study. After adjustment for other variables, perceived risk and optimism were not significantly related to subsequent preventive behaviour. Gerrard et al. [31] reviewed the evidence concerning the role of perceived vulnerability to HIV infection as a deter-

minant of AIDS-preventive behaviour. They concluded that research employing retrospective reports of behaviour change support the assumed relationship between perceived risk of vulnerability and preventive behaviour. This relationship, however, is not confirmed by prospective studies. They suggest that the general hypothesis of a direct link between perceived risk and preventive behaviour does not seem to extend to AIDS-preventive behaviour. Later research also indicates a weak relationship between perceived risk and AIDS-preventive behaviour in a sample of adolescents [26]. In a review, Brown et al. [33] discussed the usefulness of the Health Belief Model to help understand adolescents AIDS-preventive behaviour. Perceived vulnerability is a key element in this model. They report modest relationships between perceived vulnerability and preventive behaviour. Moreover, the model as a whole seemed to account for only a small proportion of the variance in AIDS-related risk behaviour. It could well be that perceived risk or vulnerability is a necessary condition for people to even consider preventive action, but not sufficient to produce behavioural change. Brown et al. [33] conclude that the applicability of the Health Belief Model as a research paradigm for HIV prevention research is modest. Moreover, they point at the need to incorporate other factors in models for adolescent HIV prevention. Two of these factors will be discussed in the next part of this article; i.e. self-efficacy and anticipated affect.

3. Self-efficacy and anticipated regret

Richard and van der Pligt [34] adopted an attitudinal approach similar to Ajzen and Fishbein's model of reasoned action [35,36] and assumed that adolescents' attitudes towards safer sexual practices (using condoms) would be (partly) determined by simple cost-benefit analysis of safe and less-safe sexual practices. This basic model of attitude-behaviour relationships was expanded with three factors. First, a series of studies have pointed at the importance of self-efficacy in health-related behaviours [37]. Self-efficacy refers to the subjective belief that one is able to perform the recommended preventive health behaviour and

is often a necessary condition for behavioural change to occur. Ajzen and Madden's [38] concept of perceived behavioural control is similar to self-efficacy. Self-efficacy is likely to play an important role in the context of preventive action in sexual behaviour (e.g. using a condom). This factor seems especially relevant for adolescents. This group being at the start of their sexual career, could find it difficult to raise the issue of protective action.

Richard and van der Pligt [34] proposed a model that also includes a factor related to theories about economic decision making, i.e. anticipated regret. A number of studies have shown that anticipated regret of specific behavioural alternatives determines behavioural choice [39,40]. Anticipated regret is used as a generic term to refer to the main psychological effects of the various regrets and worries that beset the individual before any negative consequences actually materialise. Their model was based on the prevailing expectancy-value models of behaviour and focused on attitudes and perceived social norms as the primary determinants of behavioural intentions. The model was further expanded by some variables related to the literature on the effects of previous behaviour (habits) on present and future behavioural preferences [41]. Richard and van der Pligt [34] argued that previous behaviour could play an important role in behavioural domains that are private and not often openly discussed with peers. Habits could well play a role in sexual behaviour but the notion of habit should be introduced with caution in the context of adolescents' sexual behaviour. The sexual history of this group is limited and possibly too short to speak of habits. It seems better to use the term previous behaviour which could become habitual. To incorporate previous behaviour in their model Richard and van der Pligt [34] measured a number of variables such as condom use at first sexual intercourse, frequency of intercourse, and number of sexual partners. They also included an elaborate test of adolescents' knowledge about AIDS and AIDS transmission. This was done because a number of studies suggest a rather limited knowledge about these issues among adolescents. As a consequence, AIDS education programs have often been directed at increasing knowledge. In summary their study focus-

ed on the determinants of risky versus cautious sexual practices among adolescents and investigated the relative role of attitudes, subjective norms, self-efficacy, anticipated regret, and previous behaviour as determinants of safer sexual behaviour (i.e. condom use). Contributions of knowledge about AIDS and some demographic variables were also examined.

Richard and van der Pligt [34] conducted separate analyses for adolescents with and without a monogamous relationship. The most interesting group for our purpose is the second group. Results revealed major gender differences. Self-efficacy was the most powerful predictor of condom use for female adolescents, but for males this factor explained little variance. Anticipated regret, age at first sexual intercourse and number of sexual partners all explained independent proportions of variance for the male respondents, but not for the females. For the latter group, however, additional variance was explained by the frequency of sexual intercourse. Condom use at first sexual intercourse was found to be a powerful predictor for both groups.

Richard and van der Pligt [34] concluded that adolescents do take account of AIDS risks but only to a limited extent. Perceived vulnerability was not a powerful predictor of preventive behaviour. About half the respondents in the non-monogamous group had taken risks in their past sexual behaviour, i.e. they did not always use condoms. Condom use at first intercourse was found to be predictive of future condom use, irrespective of group and gender. Their findings suggested that special efforts should be taken to convince adolescents without sexual experience to use condoms. If adolescents can be convinced to use a condom on their first sexual intercourse, they could be more likely to use condoms on later occasions. For the girls in the non-monogamous group self-efficacy was found to be the most powerful predictor of further condom use. This suggests that more effort should be made to increase self-efficacy for this group. Health education campaigns could address this issue by providing role-models of how to deal with these issues. Anticipated regret and worry was found to be an important predictor of condom use for the boys in the non-monogamous group.

Richard and van der Pligt [34] concluded that AIDS-preventive campaigns should not only focus on increasing perceived vulnerability and knowledge about issues such as transmission routes, but also on increasing perceived self-efficacy (especially for female adolescents) and the anticipation of regret. It is to the last issue that we turn next.

4. Anticipated regret and preventive behaviour

In this section we will briefly summarize the findings of Richard and van der Pligt [42] who investigated the impact of anticipated regret on preventive behaviour. Anticipated regret is defined as the presence of negative feelings such as regret, anxiety, and worry and the relative absence of positive feelings. We expected that if subjects anticipate negative feelings such as regret and worry after unsafe sexual behaviour, they are more likely to take preventive action. In their studies Richard and van der Pligt [42] employed a simple technique to increase subjects' awareness that unsafe sex is likely to result in unpleasant feelings. Respondents were presented with scenario's describing a realistic situation in which they met an attractive other with whom they would like to have sex. In these studies respondents were either asked to imagine how they would feel about such an event or how they would feel after the event. With this simple procedure we attempted to influence the time perspective of respondents and to make their feelings after the event more salient.

In a first study 103 respondents (median age, 22) were asked to answer a brief questionnaire. The first page introduced the issues of 'sexual intercourse' and 'condom use' and stressed anonymity. On the next page, respondents were asked to imagine the following hypothetical situation: 'Suppose, you are on a holiday and you meet a very attractive boy (girl) and after spending some time with him (her) the two of you have sexual intercourse'. Subjects in the first condition were asked 'to describe the feelings you have about sexual intercourse (in the above situation) when not using a condom but another contraceptive'. On the next page they were asked 'to describe the feelings you have about sexual intercourse (in the above situation) when using a condom'. Respondents in the

other condition were asked 'to describe the feeling you would have after having had sexual intercourse (in the above situation) and not having used a condom, but another contraceptive'. On the next page they were asked 'to describe the feelings you would have after having had sexual intercourse (in the above situation) and having used a condom'. Thus in this condition respondents were encouraged to imagine how they would feel after having had (un)protected sex. In this way we attempted to influence the time perspective of respondents and to make negative feelings such as worries and regrets more salient with respect to unsafe sex.

Respondents could describe their feelings by choosing ten out of forty affect-terms, of which 18 were positive and 22 were negative according to the taxonomy of Watson and Tellegen [43]. Examples of these are 'active', 'excited' and 'elated' for positive affect terms, and 'fearful', 'guilty', 'worried' and 'regret' for negative affect terms. We simply counted the number of negative affect terms chosen by subjects. In this manner each respondent received a score from 0 (low negative affect) to 10 (high negative affect) for each of the behavioural alternatives. Next, respondents were asked: 'If you would have sexual intercourse with someone on your holiday, is it more likely that you will use a condom or another contraceptive?'

Results of this study can be summarized as follows: (a) Respondents listed significantly more negative feelings, such as regret, worries and anxiety, when asked to think about unsafe as opposed to safe sex. (b) This was even more the case when respondents were asked to describe the feelings they would feel after the sexual act. Results showed a clear difference between affective reactions towards a sexual encounter and those after the encounter, but only for unsafe sex. (c) After answering questions about how they would feel after having had sex, respondents indicated a greater likelihood of using condoms when on holiday.

Overall, these findings indicate that a simple manipulation of time perspective when thinking about affective reactions resulted in the expectation to be more cautious in the future. This finding suggests a straightforward method to reduce unsafe sexual behaviour. One shortcoming of this

study should be mentioned, however. The study focused on expectations to use condoms in future casual encounters, and did not examine the effect of the manipulated time perspective on actual behaviour. To test this Richard and van der Pligt [42] carried out another study which included a follow-up measure of condom use in casual encounters over a period of 5 months. The purpose of that study was to replicate the earlier findings and to test the effects of time perspective on actual preventive behaviour. The study in which 336 respondents (median age, 20) participated, followed a similar procedure. Respondents either described their feelings about or their feelings after safe versus unsafe sex. Next, behavioural expectations were measured.

Results confirmed the findings of the first study. When asked to imagine their feelings after having had sex with a casual partner, respondents associated more negative feelings with unprotected sex. Thus, a longer time perspective made negative feelings of regret and worry more salient. Similarly, positive feelings were more salient for protected sex. In this study time perspective also affected respondents' expectations to use condoms in the future; those who were asked to imagine and describe their 'feelings after' having had sex with

a new partner, had higher expectations to engage in safe sex, i.e. use condoms. This was especially so for male respondents. Five months after the first questionnaire respondents were approached again. A total of 40 respondents reported having had (casual) sexual intercourse with one or more partners since the start of the experiment. These respondents were asked whether they had used condoms or not. Their responses were given on a 9-point scale ranging from never (1) to always (9). Fig. 1 shows the mean scores for each of the groups, separately for female and male respondents.

As can be inferred from the findings summarized in Fig. 1, time perspective had a profound effect on condom use in casual sex, apparently for male respondents only. After correction for condom use in casual sexual encounters the year preceding the study Richard and van der Pligt [42] still found a main effect of time perspective. Again, this effect was more pronounced for male respondents than for female respondents (Fig. 2).

Thus, respondents associated sexual intercourse without using a condom more strongly with negative feelings than sex with the use of a condom, especially if they were persuaded to take a longer time perspective and imagine their feelings after

Fig. 1. Reported condom use with new or casual partners in the 5 months following the intervention (□, respondents who were asked to describe their feelings *about* (un)protected sex; ■, respondents who were asked to describe their feelings *after* having had (un)protected sex).

Fig. 2. Reported condom use with new or casual partners in the 5 months following the intervention, corrected for previous condom use (□, respondents who were asked to describe their feelings *about* (un)protected sex; ■, respondents who were asked to describe their feelings *after* having had (un)protected sex).

the sexual act. The respondents who were persuaded to take a longer time perspective also revealed firmer expectations to use condoms when having casual sexual partners and took more preventive measures (i.e. used a condom) in a 5-month period following the first stage of the experiment.

All in all, these findings suggest that a simple, straightforward intervention which consists of asking adolescents to think about how they would feel after unprotected sex can be effective in persuading adolescents to take preventive action. Unprotected sexual intercourse with casual partners can have severe negative consequences; it could well be that anticipated negative feelings such as worries, anxiety and regret are especially powerful in domains in which behaviour can have severe, irreversible negative consequences. There is other evidence, however, suggesting that anticipated affective reactions can also influence such diverse behaviours as driving violations [44] and consumer behaviour [45]. In the final section we will discuss the practical implications of the present research.

5. Discussion

In this article we first presented an overview of research on the perception of health risks in general. Perceived risk and vulnerability are key factors in most models of health behaviour. Generally, people tend to be optimistic when comparing their risk with others. This general finding has also been obtained for adolescents' perception of their risk of contracting AIDS. The relationship between (comparative) optimism and preventive behaviour remains unclear, however. When adolescents are asked to assess their own risk of contracting AIDS, a different picture emerges. Generally, risk assessments are higher than those based on epidemiological findings. All in all, these risk appraisals or perceived vulnerability show only a weak relation with preventive behaviour, suggesting that perceived risk is a necessary but not a sufficient condition to produce behavioural change. For this reason we discussed two other determinants of preventive behaviour in more detail: self-efficacy and anticipated regret. We briefly discussed self-efficacy and argued that this

factor could be essential in producing behavioural change. Health information and education should not only warn about the negative consequences of specific behavioural practices but also provide information about how to perform the recommended behaviour. Providing role models could be one way to persuade adolescents to accept condom use as an essential element of their sexual practices, especially with new or casual partners. Next, we focused on another determinant of preventive behaviour, anticipated regret. Anticipated regret is used as a generic term to refer to the main psychological effects of the various regrets and worries that beset the individual before any negative consequences of his or her behaviour actually materialize.

The evidence presented in the present article suggests that stressing negative affective reactions by manipulating time perspective could be effective in persuading adolescents to adopt preventive sexual behaviour, especially with 'casual' partners. Focusing on anticipated regret could be useful due to the limited impact of other behavioural determinants. First, research findings in a number of countries in Western Europe and the USA suggest that knowledge about AIDS and HIV transmission routes is adequate. Moreover, attitudes towards safe sex tend to be positive. These two factors do not seem sufficient to produce widespread behavioural change, however. It seems essential, therefore, to employ other strategies to persuade adolescents to change their behaviour. In this article we focused on the possible effects of a simple strategy in which adolescents were encouraged to take a slightly longer time perspective and focus on their affective reaction such as regret, worry and anxiety after having had unprotected sex with a new or casual partner. This intervention proved successful and resulted in short-term and long-term effects.

It is interesting to relate this to two prevailing approaches in health education. The first concerns the provision of factual information and simply points at adverse possible consequences for one's health. This approach dominated AIDS-related campaigns in a number of countries (e.g. Switzerland, The Netherlands, Germany). This approach emphasises facts about AIDS risk, trans-

mission routes and recommends preventive behaviours. Another approach tends to rely on fear-arousal as a necessary agent to produce behavioural change. This approach tends to emphasise negative consequences of not taking preventive action. Fear-arousal was the key element in the early campaigns in the UK. One of the drawbacks of fear-arousal approaches concerns the fact that high levels of fear could lead to denial and reduce the impact of health education. The fear-drive model [46] assumes a curvilinear relationship between fear-arousal and behaviour change. The reason for this is that intensive feelings of anxiety can set off defensive reactions such as a failure to pay attention to the message, rejection of the communication or defensive avoidance of anxiety-arousing thoughts.

The intervention described in this article seems to arouse some anxiety but not enough to lead to defensive reactions. A simple method encouraging adolescents to take a longer time perspective and imagine their negative feelings such as worry and regret after unprotected sex, could help to persuade adolescents to take protective action to reduce their risk of contracting AIDS. Such an approach in combination with attempts to improve adolescents' self-efficacy concerning condom use is likely to be more successful than approaches that are limited to the provision of information about the risks and/or the arousal of fear by vivid descriptions of the negative consequences of getting HIV.

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