Scary photos

The influence of photographs on the effects of a fear appeal brochure promoting safer sex in South Africa

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Preface

Two years ago, a fellow student told me about the possibility to graduate in South Africa. In a meeting, Prof Carel Jansen (University of Nijmegen) gave me further information about the EPIDASA project 'Improving the effectiveness of public information documents on HIV/AIDS in South Africa' and I immediately became very enthusiastic. It was a great opportunity to travel to South Africa and to participate in a very interesting project that might contribute to the improvement of HIV/AIDS information.

My time in South Africa has been a very special experience for me. I had the opportunity to live in a beautiful country for six months and to come into touch with another way of living. I have met a lot of great people and got to know the diversity of the South African population. In addition to my research I got the chance to do some voluntary work with orphan children and people with HIV/AIDS. This has made the impact of the HIV/AIDS epidemic on people in South Africa clearer to me.

I would like to use this opportunity to thank Prof Carel Jansen and Dineke Ehlers for their supervision during my project. Moreover, I would like to thank Cristina and Mehluli for their help with conducting the experiment and I would like to thank my family, especially Francien and Lukas, for listening to all my concerns about my thesis. Finally, a special thanks goes to John for his help and his great support during this year.

Nijmegen, 25 June 2004
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Abstract

At present, the HIV/AIDS epidemic is having a severe effect in South Africa and it forms a serious threat to young South Africans. A representative study (HSRC, 2002) estimated that 11.4% of the South African population over the age of two - 4.5 million people - are living with HIV/AIDS. Furthermore, it is estimated that 60% of all new infections occur between the age of 15 and 25 years (loveLife, 2001). HIV/AIDS education is of central importance in slowing down the spread of the disease in South Africa. There is a need for more knowledge in the area of HIV/AIDS education in order to improve the effectiveness of HIV/AIDS messages.

This study is part of a subproject of the EPIDASA project, titled: '*Persuading people to have safer sex: using fear appeals effectively'*. A fear appeal is a persuasive message that attempts to motivate recipients into safer behaviour by arousing fear (Rogers, 1983). The experiment performed in this study investigates whether the use of photographs influences the components of a fear appeal message aimed at South African adolescents. Moreover, the experiment investigates whether the use of photographs influences South African adolescents' evaluation of fear appeal messages. In order to answer the research questions, three different fear appeal brochures were prepared: one brochure with a fear-arousing photograph, one brochure with a neutral photograph and one brochure without a photograph. The participants of the experiment consisted of 170 South African adolescents from 12 to 19 years of age.

On the basis of earlier research, it was expected that a fear-arousing photograph would contribute to the vividness of the threat component of a fear appeal message, but would have no effect on participants' perceived efficacy of the recommended response. Results indicated that perceived threat of HIV/AIDS was indeed rated somewhat higher by participants who read the brochure with a fear-arousing photograph, but this difference was not significant. Participants' perceived efficacy was the same for all brochures, as expected. The results of the experiment did not completely confirm the predictions regarding fear and danger control responses of Witte's (1992) fear appeal model, the EPPM.

Earlier research indicates that (1) images could contribute to the persuasiveness of fear appeal messages and (2) messages that include images are preferred by most recipients. This experiment only partially confirmed these indications. Participants did evaluate the content of the brochure with a neutral photograph more positively than the brochure without a photograph, but this difference was not significant. However, participants rated the source credibility of the brochure with the fear-arousing photograph significantly higher than the source credibility of the brochure without a photograph.

Contents

Introduction

1.1 HIV/AIDS epidemic in South Africa

At present, the HIV/AIDS epidemic is having a severe effect in South Africa. A representative study recently conducted in South Africa (HSRC, 2002), estimated that 11.4% of the South African population over the age of two - 4.5 million people - are living with HIV/AIDS. The epidemic affects all ethnic/cultural groups in South Africa, although there is variation in prevalence. HIV/AIDS prevalence amongst black South Africans is highest (12.9%), infection rate among white South Africans is 6.2%, in the Coloured population the prevalence is 6.1% while prevalence in the Indian community is 1.6% (HSRC, 2002). It is estimated that 60% of all new infections occur in people between the age of 15 and 25 years (loveLife, 2001). Thus, the HIV/AIDS epidemic forms a serious threat to young people. The total number of HIV-infected South Africans is expected to continue rising well into the next decade (loveLife, 2001). This means that the worst of the epidemic's impact will be felt in the next decade and beyond.

These alarming numbers show that HIV/AIDS education programmes are of central importance in slowing down the spread of the disease in South Africa. HIV/AIDS programmes can especially influence young people, since they are at a stage of transition from childhood to adulthood and have not yet established their sexual practices. In recent years, the South African government and more than 600 health organisations in South Africa have developed a number of HIV/AIDS education programmes. Unfortunately, these programmes have achieved only limited success; a fact attested to by the rising number of HIV/AIDS infected individuals (Swanepoel, 2003).

A crucial problem with current HIV/AIDS education initiatives in South Africa, is that only very limited information is available concerning the effect present education programmes and/or strategies have had (Kelly, 2000; 2001). Hardly any scientific research has been conducted to evaluate the impact of current education programmes on the South African population (Kelly, 2000; 2001). Another problem is that South African education programmes are often not based on document design and persuasion theories. Education programmes can make use of theory to define terms, contain concepts, propose links between variables, and make predictions (Perloff, 2001). According to Perloff, effective HIV/AIDS education programmes require, amongst others things, systematic application of theory and in-depth understanding of the target population (Perloff, 2001). Currently, there is little research available in South Africa concerning the design of health education documents. The lack of research concerning the effectiveness of current education programmes and the limited application of theory in programmes may be the main reasons for the disappointing results of South African HIV/AIDS

intervention programmes. Thus, since past intervention efforts have not changed behaviour to the intended direction, there is a need for more knowledge in the area of HIV/AIDS education in order to improve the effectiveness of HIV/AIDS messages.

1.2 EPIDASA project

From January 2002 to January 2005, three South African and three Dutch universities (the Universities of South Africa, Pretoria and Stellenbosch and the Universities of Tilburg, Nijmegen and Twente) are carrying out a large-scale research project, called the EPIDASA project, with the overall aim of improving the effectiveness of HIV/AIDS prevention messages for South African target groups. Two main research questions were formulated for the project:

- *Which choices with respect to content, format and wording will improve the effectiveness of HIV/AIDS prevention messages for the diverse cultural and demographic target groups in South Africa?*
- *Which evaluation techniques will improve the effectiveness of HIV/AIDS prevention messages for the diverse cultural and demographic target groups in South Africa?*

The EPIDASA project is divided into five subprojects. This study is part of the first subproject, which is titled: '*Persuading people to have safer sex: using fear appeals effectively*'. This subproject aims to determine whether fear appeals could be an effective strategy in South African HIV/AIDS messages. A fear appeal is a persuasive message that attempts to motivate recipients into safer behaviour by arousing fear (Rogers, 1983). In the context of this subproject it means that education programmes present target groups with the negative consequences that may arise as a result of not having safer sex.

1.3 Fear appeals and HIV/AIDS intervention programmes

The majority of current HIV/AIDS programmes in South Africa promote 'positive' messages instead of trying to convince people that their current behaviour can be very dangerous, by scaring them and pointing out the negative consequences of their behaviour (so-called fear appeals). An example of an organisation that follows this positive strategy is loveLife. loveLife launched the largest HIV/AIDS programmes in South Africa with the aim to 'positively influence adolescent sexual behaviour' (loveLife, 2000, p. 1). Coulson (2003) also points out in her review of South African HIV/AIDS programmes that positive messages would be more effective than fear appeals. One of the reasons that in many HIV/AIDS programmes the use of fear appeals is avoided might be that these appeals can induce anxiety and hence lead to message avoidance. According to the director of loveLife, Dave Harrison, fear appeals 'feed directly into the sense of fatalism and pessimism young people experience in South Africa' (Barron, 2003, p. 21).

However, fear appeals can play an important role in effective HIV/AIDS education campaigns. Most studies concerning fear appeals indicate that the use of fear appeals may increase the effectiveness of health campaigns (Barth & Bengel, 2000; Rhodes & Wolitski, 1990; Witte & Allen, 2000). These studies conclude that fear appeals can be an effective strategy to bring about behavioural changes. Yet, it seems that past research has not paid attention to several aspects regarding fear appeal messages. First of all, no research has been conducted so far concerning the effectiveness of fear appeals in South African HIV/AIDS communication. Secondly, little is known about the design process of fear appeal messages in general. As far as could be established, there are no research-based guidelines available with respect to content, format and wording of fear appeal messages. Specifically, hardly any attention has been paid so far to the effect of images in fear appeals.

The present study aims to increase the knowledge of the role that photographs can play in the effectivity of fear appeal messages in South Africa. The experiment performed in this study investigates whether the use of photographs influences the components of a fear appeal message aimed at South African adolescents. Moreover, the experiment investigates how the use of photographs influences South African adolescents' evaluation of fear appeal messages.

1.4 Overview of this study

This study begins with a critical discussion of the theories and literature relevant to this field. It includes an explanation of how fear appeal messages work and which aspects influence the effectiveness of fear appeal messages. On the basis of this information, in the following chapter the research questions and hypotheses of the experiment are discussed. In chapter 3, the research methodology of the experiment conducted to answer the research questions are described. Subsequently, the results of the experiment are presented in chapter 4. Chapter 5 presents a discussion of the results as well as the conclusions. Recommendations and suggestions for further research are also discussed in this chapter. Finally, the bibliography and appendices are presented. The appendices contain the materials used in the experiment.

2 Theoretical background

This chapter provides the theoretical background of the experiment conducted. It begins with a definition of two terms that are significant in this study: *health education* and *fear appeals*. The chapter continues with a description of different fear appeal theories that explain the processing of fear appeal messages by the recipient and the aspects that influence the effectiveness of fear appeal messages. These theories may explain South African adolescents' behaviour when they are confronted with a fear appeal. Next, a relevant experiment regarding the use of fear appeals and HIV/AIDS education is discussed. In this experiment, Rhodes and Wolitski (1990) studied the perceived effectiveness of fear appeals in HIV/AIDS posters. This is followed by a description of relevant literature concerning the use of images in texts in general and in fear appeal messages specifically. Finally, HIV/AIDS education material targeted at adolescents is discussed. It is explained why South African adolescents are an important target group and which aspects should be taken into account in order to reach adolescents effectively.

2.1 Health education

Health education can be defined as a means of communication in which the communicator intends to motivate and help people to adopt healthy behaviour (Brug, Schaalsma, Kok, Meertens & van der Molen, 2001, p. 18). Sassen (1999) stresses that health education concerns voluntary behaviour change. Kok (1986 as referred to in Sassen, 1999) distinguishes four different objectives of health education:

- prevent continuation of unhealthy behaviour by encouraging people to stop the unwanted behaviour;
- prevent the adoption of unhealthy behaviour;
- increase healthy behaviour, so that people will adopt even healthier behaviour;
- prevent a decrease of healthy behaviour by encouraging people to continue their healthy behaviour.

2.2 Fear appeals

A fear appeal is a form of persuasive communication that attempts to motivate recipients into safer behaviour by arousing fear. Perloff (2001) defines fear appeals as 'a persuasive communication that tries to scare people into changing their attitudes by conjuring up negative consequences that will occur if they do not comply with the message recommendations' (p. 75). Witte (1992) describes fear appeals as 'persuasive messages designed to scare people by describing the terrible things that will happen to them if they do not do what the message

recommends' (p. 329). Thus, the strategy of fear appeals is to present people with the negative consequences of their behaviour and try to trigger fear in order to motivate the recipient to reduce or eliminate this fear by changing their behaviour.

One reason why health education campaigns make use of fear appeals is because in general people's judgement of their own vulnerability for contracting diseases is too low. Adolescents in particular believe they are invulnerable to health risks (Perloff, 2001). Perloff (2001) gives a possible explanation for people's low level of perceived susceptibility to HIV/AIDS when he discusses people's illusion of invulnerability, the belief that bad things will not happen to them. 'People tend to think they are invulnerable. They expect others to be victims of misfortune, not themselves.' (Weinstein, 1980 as referred to in Perloff, 2001, p. 25). According to Perloff, people have these illusions to protect themselves 'from knowledge that could threaten their ability to function in everyday life and might undermine their self-confidence' (Perloff, 2001, p. 25) Therefore, people are often unable to estimate their own susceptibility to health threats. Communicators hope to increase attention and make recipients aware of their vulnerability for certain health dangers by using, for example, physical threats (e.g., sickness and death), social threats (e.g., isolation, disapproval) or economic threats (e.g., unemployment) in fear appeals.

Research conducted in the field of fear appeals concluded that the use of fear appeals can be an effective strategy to bring about behaviour changes (Barth & Bengel, 2000; Rhodes & Wolitski, 1990; Witte & Allen, 2000). However, fear appeals can also cause a person to minimize the threat through self-protective mechanisms, such as discounting the threat's importance, discounting the likelihood that the threat will occur, denying the personal relevance of the threat, paying no attention to the content of the message, discounting the credibility of the source, or by defensive avoidance (avoid thinking about the threat in the future). Fear appeal theories revolve around the inner processes that cause a recipient to behave in a particular way when he or she is confronted with a fear appeal. The theories offered over the past decades have built upon one another and reflect the ideas of the time period in which they were developed. Fear appeal theories can be categorised into four groups (Witte, 1992):

- Drive Models (Hovland, Janis & Kelly, 1953; Janis, 1967; McGuire, 1968, 1969),
- Parallel Process Model (Leventhal, 1970, 1971),
- Protection Motivation Theory (Rogers, 1975, 1983),
- Extended Parallel Process Model (Witty, 1992).

2.2.1 Drive Models

The earliest theories about the effect of fear appeals are the drive models (fear-as-acquired-drive model: Hovland, Janis & Kelly, 1953; Janis, 1967; nonmonotonic model: McGuire, 1968, 1969). According to these models, fear functions as a drive (stimulus) to adopt behaviour that will reduce the fear.

Janis developed the fear-as-acquired-drive model (1967; Hovland, Janis & Kelly, 1953). In this model Janis (1967) suggests a curvilinear relationship between fear and message acceptance. When a recipient is confronted with a fear appeal, a drive will be created. This drive motivates recipients to adopt a response that will reduce their fear, whether *adaptive* (by performing the recommended behaviour, e.g. condom use) or *maladaptive* (by controlling the fear, e.g. denial). This means that fear appeals can also lead to unintentional and undesired effects. According to Janis (1967), some measure of fear arousal is necessary to create a drive, but too much fear causes rejection of the message and will result in self-protective mechanisms.

McGuire (1968, 1969) also makes use of a curvilinear explanation of the effect of fear appeals in his nonmonotonic model. He claims that if fear acts as a *drive*, it motivates people to accept the message. If fear acts as a *cue*, it causes responses that interfere with the acceptance of the message. These two factors (drives and cues) lead to a curvilinear relationship between fear and message acceptance. Therefore, according to both the fear-as-acquired-drive model as the nonmonotonic model, a moderate amount of fear would be most effective.

The drive theories were rejected due to a lack of sufficient empirical support (Dabbs & Leventhal, 1966; Higbee, 1969; Leventhal & Watts & Pagano, 1967 as referred to in Witte et al., 1996). No evidence has been offered to support McGuire's nonmonotonic model while Janis' model has also been rejected (Witte et al., 1996).

2.2.2 Parallel Process Model

The Parallel Process Model developed by Leventhal (1970, 1971) is the first to distinguish between two separate processes concerning fear appeals: *danger control* and *fear control*. Danger control is a cognitive, problem-solving process motivated by a recipient's desire to avoid danger. This process is determined by information from external sources or from a recipient's own experience with a specific behaviour. Fear control on the other hand is a subjective, emotional process to control one's fear about the danger. It reduces unpleasant emotions caused by fear appeals. Thus, if recipients think about the fear appeal and try to control the danger (e.g., abstain from sex), they use danger control processes. In contrast, if recipients try to control their feelings of fear (e.g., denial), they make use of fear control processes.

The Parallel Process Model does not fully define or explain the fear and danger control processes and does not state what factors initiate the different processes. Besides this, Leventhal was unable to support his theory empirically (Barth & Bengel 2000). However, the model did change the perception of fear appeals and offers a useful distinction between cognitive and emotional processes concerning fear appeals (Witte, 1996).

2.2.3 Protection Motivation Theory

Rogers (1975, 1983) elaborated Leventhal's theory by developing the Protection Motivation Theory. The aim of this theory was to specify the characteristic elements of fear appeals. Rogers formulates two dimensions each with two components of danger control processes:

(1) Threat appraisal:

   (a) *perceived susceptibility* to the threat (e.g., 'Am I at risk for HIV/AIDS?')
   (b) *perceived severity* of the threat (e.g., 'How serious is HIV/AIDS; how hard would my life be if I was infected with HIV/AIDS?')

(2) Coping appraisal:

   (c) *perceived self-efficacy* (the recipient's ability to perform the recommended response (e.g., 'Can I insist on condom use with my partner?'))
   (d) *perceived effectiveness of the recommended responses* (e.g., 'Are condoms effective against HIV/AIDS transmission?')

Maximum protection motivation occurs when these four components reach a high level. Recipients then accept the message and are motivated to take protective measures against the health threat. The two dimensions, threat appraisal and coping appraisal, influence a recipient's protection motivation.

In the *threat appraisal* process, protection motivation decreases if the rewards of unhealthy behaviour (e.g., heightened sexual pleasure) are higher than the perceived severity of the negative consequences (e.g., AIDS is a very harmful disease) and the perceived susceptibility to the health threat (e.g., high risk of HIV infection). In contrast, protection motivation increases if the perceived threat is higher than the rewards of the unhealthy behaviour. In the *coping appraisal* process, increases in self-efficacy (e.g., ability to discuss condom use with partner) or perceived response efficacy (e.g., condoms protect me against AIDS) lead to a higher protection motivation, while increases in response costs (e.g. lost spontaneity) lead to a lower protection motivation and thus a lower probability of behaviour change.

The Protection Motivation Theory offers an explanation of the factors that lead to message acceptance (Witte, 1992). The model shows that fear appeals have a positive effect on behaviour change if the recipient has sufficient coping strategies available to be able to change his or her behaviour (Barth & Bengel, 2000). However, the interaction between threat appraisal and coping appraisal processes, and the influence this interaction has on a recipient's protection motivation is not explained (Witte, 1992).

2.2.4 *Extended Parallel Process Model (EPPM)*

The Extended Parallel Process Model (Witte, 1992, 1998) adopts the original explanation of the Protection Motivation Theory that leads to message acceptance (the danger control processes of the Parallel Process Model), and defines and expands the processes that lead to message rejection (the fear control processes of the Parallel Process Model). Moreover, the EPPM integrates other behaviour theories, such as the Health Belief Model (Rosenstock, Strecher & Becker, 1994) and the social cognitive theory (Bandura, 1995 as referred to in Perloff, 2001). In contrast to the aforementioned fear appeal theories, Witte clarifies how recipients initially process risk messages and explains both successes and failures of fear appeals.

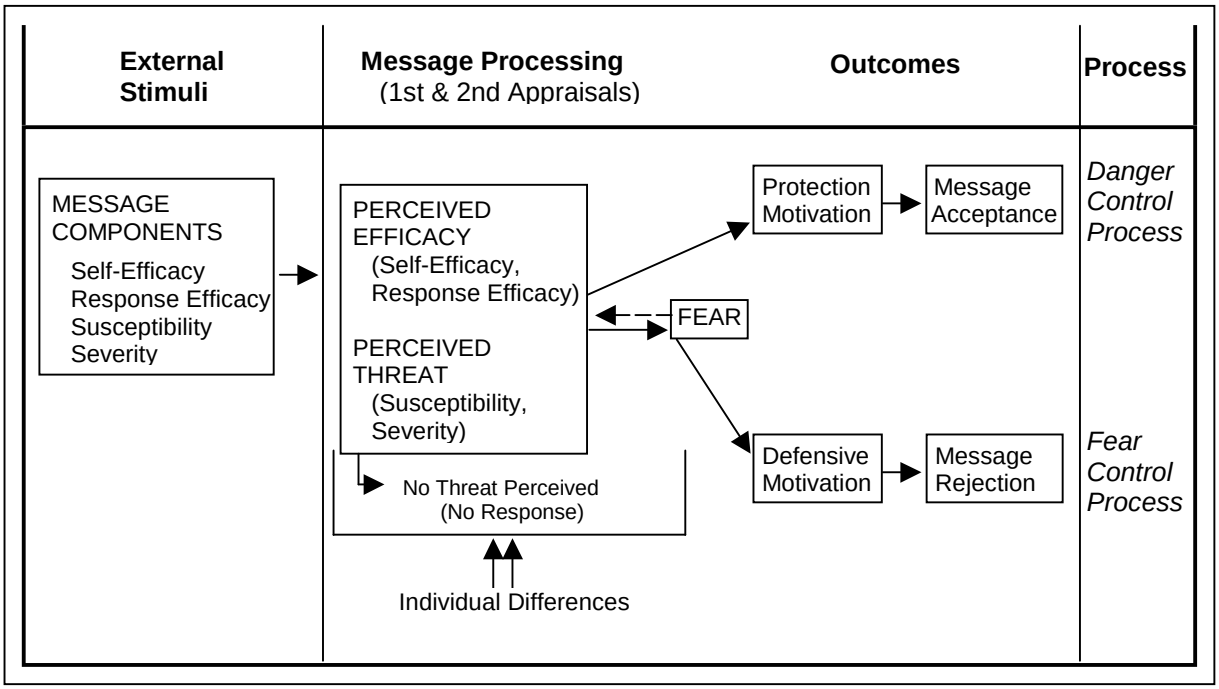
According to Witte (1992), a fear appeal message initiates two appraisals: a threat appraisal and an efficacy appraisal. When recipients are confronted with a fear appeal, they first appraise the *perceived threat* (*perceived susceptibility* and *severity*) of the fear appeal. If recipients perceive the threat as irrelevant and/or insignificant to them, they do not process the message any further and ignore the fear appeal. In this case, recipients do not evaluate the perceived efficacy and do not respond to the message.

If recipients do believe they are susceptible to a severe health threat, they start the second appraisal and evaluate the *perceived efficacy* (*perceived self-efficacy* and *response efficacy*) of the recommended response. If recipients believe that the recommended response is an effective strategy against the threat and that they are able to perform the recommended response, they are motivated to control the danger and adopt the recommended response. Thus, if perceived threat and perceived efficacy are high, recipients respond to the danger, not their fear (*danger control processes*) (Witte, 1992).

However, if recipients realise the health threat affects them, but feel they are unable to deal with the threat effectively; they will try to control their fear through self-protective mechanisms. Thus, if perceived threat is high but perceived efficacy is low, recipients respond to their fear, not the danger (*fear control processes*) (Witte, 1992).

Perceived threat in the EPPM consists of participants' perceived susceptibility combined with perceived severity. This concept resembles the two components *chance* and *severity* from the risk assessment theory (Kinney & Wiruth, 1976). In the risk assessment theory *risk* is defined as the *product* of the *chance* and *severity* of a certain danger or problem. In accordance with the concept of the risk assessment theory, in this study perceived threat will be defined as the product of perceived susceptibility and perceived severity. A comparable approach will be followed for perceived efficacy: perceived efficacy will be defined as the product of perceived self-efficacy and perceived response efficacy. The next figure gives an overview of the EPPM (Witte, 1992).

Figure 2.1: Overview of the EPPM



The figure shows that according to the EPPM external stimuli (containing the fear appeal message components) lead to the first and second appraisals (threat and efficacy appraisal respectively) of message processing. These appraisals can result in: (1) no response from the recipient when no threat is perceived, (2) protection motivation and message acceptance, when both perceived threat and perceived efficacy are high (danger control processes), and (3) defensive motivation and message rejection due to fear, when perceived threat is high but perceived efficacy is low (fear control processes). Witte states that individual differences (at the bottom of the figure) 'indirectly influence outcomes, as mediated by perceptions of threat and efficacy' (Witte, Meyer & Martell, 2001, p. 28). According to Witte (1992), 'fear may contribute to the motivation to process a message if it is cognitively appraised' and 'fear causes maladaptive responses, and may indirectly influence adaptive responses, as mediated by perceived threat' (p. 338).

In short, according to the EPPM, the perceived threat determines the degree of the response to the message, while the perceived efficacy determines the nature of the response (danger or fear control) (Witte, 1992). As long as the perceived efficacy is higher than the perceived threat, people will accept the fear appeal message and change their behaviour. However, if the perceived threat is higher than the perceived efficacy, people control their fear instead of the danger and reject the fear appeal message (Witte, 1992). The next figure outlines the possible responses to fear appeal messages according the EPPM.

Figure 2.2: Possible responses to fear appeal messages according the EPPM

	HIGH PERCEIVED EFFICACY **Response, self-efficacy** Person believes he/she can control health threat	**LOW PERCEIVED EFFICACY** **Response, self-efficacy** Person does not believe he/ she can control health threat
HIGH PERCEIVED THREAT **Susceptibility, severity** Person believes he/she is at risk for harmful health threat	**Danger control** Person takes protective action against health threat	**Fear control** Person takes self-protective actions to minimise fear
LOW PERCEIVED THREAT **Susceptibility, severity** Person does not believe he/ she is at risk for health threat	**No response** Person does not think threat is real/relevant and does not take any action	**No response** Person does not think threat is real/relevant and does not take any action

Witte and Allen (2000) conducted a meta-analysis on over 100 articles regarding fear appeals. Both danger control and fear control responses were investigated. The results regarding *danger control* responses showed that high fear appeal messages were more persuasive than low fear appeal messages. The combination high threat + high efficacy (HTHE) had the most persuasive impact, while the combinations low threat + high efficacy (LTHE) and low threat + low efficacy (LTLE) were the least persuasive. These results are consistent with the predictions of the EPPM. According to the EPPM, the HTHE combination should be most persuasive while the other three combinations (HTLE, LTHE and LTLE) should not be significantly different from each other. However, the persuasion of the HTLE combination was not significantly different from the LTHE group (as expected according the EPPM), but the HTLE combination was significantly more persuasive than the LTLE group (which was not expected according the EPPM). The results regarding *fear control* responses showed that the stronger the fear appeal message, the stronger the fear control responses. Furthermore, the weaker the efficacy message, the greater the fear control and defensive responses. Additionally, Witte and Allen (2000) found that fear control responses are negatively correlated

with danger control responses. These results confirm the expectations of the EPPM that danger control responses and fear control responses interfere with one another.

In sum, fear appeals are most effective to promote attitude, intention, and behaviour changes when they increase perceptions of the four components of the EPPM: severity, susceptibility, self-efficacy and response efficacy. High threat messages, regardless of which efficacy message they were combined with, produced greater effects than any low threat message (Witte & Allen, 2000). 'Overall, the evidence is not conclusive for one model over another' (Witte & Allen, 2000, p. 604).

2.3 Fear appeals and HIV/AIDS education: an experiment

Rhodes and Wolitski (1990) studied the perceived effectiveness of fear appeals in HIV/AIDS education by means of an experiment. In this experiment the severity of the threat, the susceptibility to the threat and the effectiveness of the recommended response were manipulated in combination with participants' characteristics of gender, age, ethnicity, and group membership. 261 American community residents, college students and intravenous drug users participated in the experiment. Participants were asked to evaluate posters in terms of their perceived effectiveness in motivating people in their community to use condoms.

In total, forty experimental posters were prepared using ten different images and four different written sentences. The images either portrayed severe consequences of HIV/AIDS or were neutral with respect to disease severity. Each of the four written sentences contained a different combination of high or low personal susceptibility to HIV/AIDS and high or low response efficacy for using condoms. The validity of the manipulated images and sentences was checked by means of an extended pretest with an independent sample of 75 participants from the target population.

Rhodes and Wolitski (1990) found that participants rated high threat severity posters as significantly more effective than low threat severity posters, regardless of the participants' sex, age or ethnicity. No significant main effects of threat susceptibility and response efficacy were found. In general, age, gender, ethnicity and group membership did not influence rated effectiveness of the posters. However, younger participants had a slight tendency (it approached significance), in comparison with older participants, to show a preference for the high threat severity posters. Moreover, there was a significant interaction of age and response efficacy on perceived effectiveness: older participants' perceptions of poster effectiveness were influenced more than those of younger participants by the high response efficacy message.

Thus, this research implies that the more terrifying the image portrayed on a poster, the more convincing the message is rated. Younger participants appeared to have an even larger preference for high threat severity posters than older participants. A high response efficacy message had a larger influence on the perceived poster effectiveness of older participants in comparison with younger participants.

A strong aspect of Rhodes and Wolitski's experiment is the selection process of the images. Since researchers cannot assume that what frightens them also frightens their target population (Perloff, 2000), Rhodes and Wolitski conducted an extensive pretest prior to the experiment to determine the amount of fear aroused by the selected images. Participants were asked to compare each of the 45 possible pairs of images and to indicate which image 'would make people more afraid of AIDS' (Rhodes & Wolitski, 1990, p. 5). As a result of this pretest, Rhodes and Wolitski were able to rate the fear intensity of the images according the opinion of the target population. The obtained rating confirmed the expectations of Rhodes and Wolitski.

A limitation of this research is the fact that both photographs and other types of illustrations such as drawings were used in the experiment, which could have influenced the results, since different types of images could have different effects on the participants' emotions. Rhodes and Wolitski (1990) used photographs for most of the high threat severity posters and other illustrations such as line drawings for all of the neutral posters. According to Crompton (1979) drawings attract less attention than photographs, especially ones that recipients can identify with. Recipients perceive photographs as more believable and find it easier to remember them (Crompton, 1979).

Another restriction of the experiment is that the text messages with different levels of threat susceptibility (TS) and response efficacy (RE) were very brief: only one sentence was used on each poster. The four sentences were (Rhodes & Wolitski, 1990, p. 6):

- 'Be smart about AIDS - Use Condoms (low TS, low RE)
- 'Use Condoms - They're the Best Protection against AIDS (low TS, high RE)
- 'Nobody's Safe from AIDS - Use Condoms' (high TS, low RE)
- 'Anybody Can Get AIDS - Use Condoms - They May Save Your Life' (high TS, high RE)

Even though a validity check conducted on these four sentences in a pretest confirmed the different levels of threat susceptibility (TS) and response efficacy (RE), Rhodes and Woliski (1990) point out in their discussion that there may have been insufficient contrast between the high and low threat susceptibility and response efficacy conditions to generate differential perceptions. The text of the messages may not have been extensive enough to effectively communicate the message of high and low threat susceptibility and high and low response

efficacy. An effective fear appeal convinces recipients that they are susceptible to a severe threat and that they are able to adopt an easy and feasible response to effectively avert the threat (Witte, Meyer & Martell, 2001). Therefore, communicators should personalise the risk to the recipient and clearly demonstrate the effectiveness of the recommended response within the message (Hale & Dillard, 1995).

2.4 Fear appeals and images

When a person is confronted with a message, his or her eye goes to the image first and then to the heading (Pettersson, 2002). It may only take 2 to 3 seconds to recognize the context of an image, but 20 to 30 seconds to read a text underneath the image and 60 to 90 seconds to read it out loud (Pettersson, 2002). Images are perceived much faster than text and motivate a person to pick up, browse through and read a text (Pettersson, 2002). Images have the ability to attract attention to a message, arouse the recipient's interest and curiosity and keep the recipient's attention. Moreover, images often provide a better overview and understanding of the subject of a message than text (Pettersson, 2002). Memory for images tends to be better than memory for words and recipients are more likely to recall images at a later time (Hale & Dillard, 1995). Due to the factors mentioned above, messages that include images are preferred by most recipients (Pettersson, 2002). Photographs, especially ones that recipients can identify with, immediately attract more attention than drawings; they are regarded as more believable and recipients find it easier to remember them (Crompton, 1979). In general, humans, especially their faces will get maximum attention in images (Pettersson, 2002).

Pettersson (2002) points out the powerful ability of images to trigger associations and arouse strong emotional reactions to a message. They can provoke clear images and make the subject of the message seem physically and psychologically closer to the recipient (Hale & Dillard, 1995). Images can reinforce both positive and negative experiences. They can be used to persuade, flatter, tease, shame, scare and seduce recipients (Pettersson, 2002). This indicates that the use of images with the aim of eliciting anxiety can be a successful strategy in fear appeal messages.

Eagly and Chaiken (1993) state that empirical support for the persuasive effect of images has been equivocal, but several studies have confirmed that image manipulations can improve message persuasiveness (e.g., Reyes, Thompson & Bower, 1980; Shedler & Manis, 1986; Simpson & Borgida, 1991 as referred to in Eagly & Chaiken, 1993). Images can especially play an important role in health and fear appeal messages and have been applied successfully in the past (Meyerowitz & Chaiken, 1987; Robberson & Rogers, 1987; Rook, 1987; Sherer & Rogers, 1984 as referred to in Eagly & Chaiken, 1993). Hale and Dillard (1995) also state that images have been part of strong fear appeal messages for quite some time. Two examples are the images of diseased teeth and gums in Janis and Fechbach's study of dental hygiene

and high fear messages including colour photos of an emaciated victim, tumours on a penis, and lesions on a foot in Witte's research (as referred to in Hale and Dillard, 1995). However, the specific effect of various images in fear appeal messages was not investigated in these studies.

In conclusion, research shows that images can contribute to the vividness and persuasiveness of fear appeal messages; they can attract attention and arouse strong emotions. Additionally, images have been successfully used in fear appeal messages in the past.

2.5 HIV/AIDS education for adolescents

There are several reasons why HIV/AIDS education campaigns should pay special attention to South African youth (loveLife, 2001). First of all, HIV/AIDS education can have a substantial influence on beliefs, attitudes and values towards sexual activities of young South Africans, since adolescence is a period in which young people become sexually active and begin to form their values. Therefore, they are more receptive to behaviour change than older people that are already habituated to their - mostly unsafe - sexual behaviour (loveLife, 2001). Secondly, 45% of the South African population is under 20 years old, while it is estimated that 60% of all new HIV infections in South Africa occur between the age of 15 and 25 years (loveLife, 2001). This means that young people form a disproportionately large group of the South African population and are also at high risk for HIV infection. Finally, as a result of increasing deaths among adults due to AIDS, young people will need to fill the gaps in the workplace as well as in parenting and households throughout South Africa (loveLife, 2001). Thus, HIV/AIDS education targeted at adolescents is of central importance in an effort to maintain community and household continuity in the future.

Research regarding health education for adolescents shows that a different approach is needed for this target group compared to adults. According to Austin (1995), adolescents are in a phase of experimentation, so health education needs to pay attention to moderation and intervention more than prevention. An age-appropriate communication approach which considers socialisation influences in young people's lives is needed (Kelly, Parker & Oyosi, 2001). 'Adolescents seek solutions, not preaching, and they want to be part of the solution rather than viewed only as the problem' (Austin, 1995, p. 123).

Austin (1995) suggests that communicators should understand and respect the perspective of young people and should therefore emphasize short-term negative effects rather than long-term abstract health dangers. Adolescents have trouble processing outcomes that might happen ten years from now because they do not think that far ahead. Adolescents typically think they will live forever and find it difficult to imagine negative consequences that could occur in the far future (Perloff, 2001). For example, young people striving for physical

attractiveness and social importance care more about the fact that smoking makes their breath smell bad than about the fact that they could develop cancer (Austin, 1995). Thus, in the context of fear appeals, HIV/AIDS education programmes should focus on negative consequences that are relevant to the target group. Communicators cannot assume that what scares them also scares adolescents (Perloff, 2001).

Kelly, Parker and Oyosi (2001) point out the importance of increasing the self-efficacy of young people through HIV/AIDS messages. They stress that HIV/AIDS education should pay extra attention to adolescents' abilities to assess risk of infection and to understand the influence of emotions on risk assessment. Young people's self-knowledge concerning the assessment of and coping with a new situation, in which they might feel insecure, powerless or lacking self-efficacy, should be enhanced (Kelly, Parker & Oyosi, 2001). Adolescents need to obtain skills to negotiate safer sex (Aggleton & Campbell, 2000). The importance of self-efficacy in HIV/AIDS messages is also included in Witte's EPPM (1992), discussed earlier in this chapter.

In order to reach young people effectively, appropriate media choice is necessary (Kelly, Parker & Oyosi, 2001). Mass media are increasingly present in most young people's lives and can be an important tool for this target group. They can inform adolescents about sexuality and can shape their attitudes, beliefs and behaviours. In a survey conducted by loveLife (2001), young people indicated that they are primarily receiving information about sexuality from the media and from school. A majority of adolescents received a lot or some information about sexuality from television (72%) or magazines (67%). Kelly (2000) found that radio and television are the most common sources of HIV/AIDS-related information: 79% and 78% of adolescents reported having received HIV/AIDS information from these two sources in the past month. Print media was also an important source: a total of 59% of the adolescents received HIV/AIDS-related information from newspapers and 58% from magazines (Kelly, 2000).

In sum, special attention for HIV/AIDS education targeted at adolescents is needed. Four aspects should be taken into account:

(1) the short-term perspective of adolescents,
(2) the need for self-efficacy enhancement,
(3) the need for risk assessment skills,
(4) appropriate media choice.

3 Research questions

As discussed in the previous chapter, literature regarding fear appeal messages suggests that fear appeals can be a useful and effective persuasion strategy to change behaviour (Barth & Bengel, 2000; Rhodes & Wolitski, 1990; Witte & Allen, 2000). Fear appeals have proved to be effective if they not only frighten recipients by telling them they are susceptible to a severe disease, but also convince recipients that they are able to adopt the recommended response and thus can effectively cope with the health threat (Witte, 1992). A meta-analysis conducted on over 100 articles regarding fear appeals found that the combination high threat + high efficacy in a message had the most persuasive impact, while the combinations low threat + high efficacy and low threat + low efficacy were the least persuasive (Witte & Allen, 2000). Rhodes and Wolitski's experiment (1990) concluded that young people had the largest preference for terrifying HIV/AIDS messages. Since South African youth can play an important role in slowing down the spread of the virus, research concerning HIV/AIDS education for this target group is needed.

Unfortunately, no research has been conducted so far regarding the persuasiveness of fear appeals aimed at South African adolescents. This implies that no research-based guidelines are available yet with respect to the design of fear appeal messages for South African adolescents. Earlier research in other target populations suggests that the effectiveness of health risk message designs can be improved by the use of images (Eagly & Chaiken, 1993). This study aims to increase the knowledge of the role that photographs can play in the perception of fear appeal messages in South Africa. It is partially based on the experiment from Rhodes and Wolitski (1990). However, this study specifically focuses on the use of photographs in a fear appeal brochure promoting safer sex (condom use, delaying sexual debut and reduction of sexual partners) aimed at South African adolescents in the age group 12 to 19 years old. The main research questions are:

(1) Does the use of photographs influence the variables associated with fear appeal messages aimed at South African adolescents?
(2) Does the use of photographs influence South African adolescents' evaluation of the content, writing style and source credibility of a fear appeal message?

Furthermore, the interaction effects of the use of photographs and participants' characteristic age, gender and ethnic background on the dependent variables mentioned in (1) and (2) are measured. The hypotheses of this research are discussed in the next sections.

3.1 The influence of photographs on the variables in fear appeal messages

Eagly and Chaiken (1993) state that image manipulations can improve message persuasiveness (section 2.4). Images can especially play an important role in health and fear appeal messages, and have been applied successfully in the past (Eagly & Chaiken, 1993). Rhodes and Wolitski's experiment (1990) concluded that participants rated posters with images that portrayed severe consequences of HIV/AIDS as significantly more effective than posters with images that were neutral with respect to disease severity (section 2.3).

Based on these findings, it is expected that a fear-arousing photograph will contribute to the vividness of the threat component of a fear appeal message. The null hypotheses regarding the influence of photographs on the variables in fear appeal messages are presented next.

1) Variables in fear appeal messages:

   (a) All brochures will have the same effect on South African adolescents' *perceived severity* of HIV/AIDS.
   (b) All brochures will have the same effect on South African adolescents' *perceived susceptibility* to HIV/AIDS.
   (c) All brochures will have the same effect on South African adolescents' *perceived self-efficacy* in condom use, delaying sexual debut and the reduction of sexual partners.
   (d) All brochures will have the same effect on South African adolescents' *perceived response efficacy* of condom use, delaying sexual debut and the reduction of sexual partners.

3.2 Relationship between variables of fear appeal messages

According to the EPPM (section 2.2.4), recipients respond to their fear if perceived threat is high, but perceived efficacy is low (fear control processes). In this case, recipients will try to control their high fear for the health threat through self-protective mechanisms. The EPPM predicts that recipients respond to the health danger if both perceived threat and perceived efficacy are high (danger control processes). Recipients then believe they are susceptible to a severe threat and believe that the recommended response is an effective strategy against the threat. In order to verify these predicted relationships between the variables of fear appeal messages in the EPPM with regard to fear and danger control processes, two null hypotheses have been formulated.

2) Relationship between variables of fear appeal messages:

   (a) No relationship exists between (1) the *product* of South African adolescents' *perceived severity* and *perceived susceptibility* to HIV/AIDS, (2) the *product* of South African adolescents' *perceived self-efficacy* and *perceived response efficacy* of condom use, delaying sexual debut and the reduction of sexual partners on the one hand, and (3) South African adolescents' induced *fear* after reading the brochure on the other hand.
   (b) No relationship exists between (1) the *product* of South African adolescents' *perceived severity* and *perceived susceptibility* to HIV/AIDS, (2) the *product* of South African adolescents' *perceived self-efficacy* and *perceived response efficacy* of condom use, delaying sexual debut and the reduction of sexual partners on the one hand, and (3) South African adolescents' evaluation of the *content* of the brochure on the other hand.

3.3 The influence of photographs on the evaluation of the fear appeal message

Research shows that images can contribute to the persuasiveness of fear appeal messages (section 2.4); they can attract attention and arouse strong emotions (Pettersson, 2002). Images are perceived much faster than text and often provide a better overview and understanding of the subject of a message than text (Pettersson, 2002). Therefore, messages that include images are preferred by most recipients (Pettersson, 2002).

On the basis of these findings, it is expected that a photograph will influence the evaluation of the content, writing style and source credibility of a fear appeal message. This leads to the following null-hypotheses:

3) Evaluation of the fear appeal message:

   (a) South African adolescents will evaluate the *content* of all brochures equally.
   (b) South African adolescents will evaluate the *writing style* of all brochures equally.
   (c) South African adolescents will evaluate the *source credibility* of all brochures equally.

3.4 Interaction effects

It may be the case that interaction effects will occur between the type of brochure and the participants' characteristics (age, gender and ethnic background) on the variables in fear appeal messages (perceived severity, perceived susceptibility, perceived response efficacy and perceived self-efficacy) and the evaluation of the fear appeal message (content, writing style and source credibility). The null hypotheses are:

4) Interaction effects:

   (a) The type of brochure and *age* will not interact on South African adolescents' *perceived severity* of HIV/AIDS, *perceived susceptibility* to HIV/AIDS, *perceived response* and *perceived self-efficacy* in condom use, delaying sexual debut and the reduction of sexual partners.

   (b) The type of brochure and *gender* will not interact on South African adolescents' *perceived severity* of HIV/AIDS, *perceived susceptibility* to HIV/AIDS, *perceived response* and *perceived self-efficacy* in condom use, delaying sexual debut and the reduction of sexual partners.

   (c) The type of brochure and *ethnic background* will not interact on South African adolescents' *perceived severity* of HIV/AIDS, *perceived susceptibility* to HIV/AIDS, *perceived response* and *perceived self-efficacy* in condom use, delaying sexual debut and the reduction of sexual partners.

   (d) The type of brochure and a*ge* will not interact on South African adolescents' *evaluation* of the *content, writing style* and *source credibility* of the brochure.

   (e) The type of brochure and *gender* will not interact on South African adolescents' *evaluation* of the *content, writing style* and *source credibility* of the brochure.

   (f) The type of brochure and *ethnic background* will not interact with South African adolescents' *evaluation* of the *content, writing style* and *source credibility* of the brochure.

4 Research methodology

4.1 Participants

The group of adolescents who participated in this experiment consisted of 170 young South Africans from 12 to 19 years of age. Since four participants answered very few questions, these four questionnaires were excluded. The participants were approached at three locations:

(1) Mamelodi SOS Children's Village (in Mamelodi, a township near Pretoria)
(2) Menlyn Park (a shopping centre in Menlyn, Pretoria)
(3) Sunnypark Mall (a shopping centre in Sunnyside, Pretoria)

The average age of the participants was 15.8 years. The number of male participants was 77 while the number of female participants was 89. Different cultural groups participated in the study: according to the data provided by the participants, 50 Afrikaners, 31 Zulu, 27 Sotho, 18 English South Africans, 21 from other black groups, 10 from other white groups, 5 Asian/ Indian people and 4 coloured people participated.

4.2 Material

In order to answer the research questions, three different brochures were prepared for the experiment: one brochure with a fear-arousing photograph, one brochure with a neutral photograph and one brochure without a photograph. All brochures measured A4 format and included the same text message. The brochures are included in the appendices.

4.2.1 Photographs

The two photographs used in the experiment were selected on the basis of a pretest conducted with eight photographs. The photographs were retrieved from existing HIV/AIDS education brochures and other materials developed by various, mostly South African organisations. All photographs were of the same size and were printed in grey-scale to rule out effects attributable to colour. In total, four supposedly neutral and four terrifying photographs were selected for the pretest.

Neutral photographs:

(a) Photograph of eight faces of young people (retrieved from S'camtoPRINT issue 20, Sunday Times & loveLife, 20-10-2002)
(b) Photograph of a condom (retrieved from www.gayhebrides.co.uk/health/images/condom on 04-10-2003)

(c) Photograph of a white couple (retrieved from the brochure 'Lovefacts', loveLife)
(d) Photograph of a black couple (retrieved from a loveLife campaign poster)

Terrifying photographs:

(e) Photograph of a corpse in a body bag (retrieved from a loveLife campaign poster)
(f) Photograph of a black boy suffering from an AIDS-related skin infection (retrieved from the book 'HIV/AIDS in Africa' (Mendel, 2002))
(g) Photograph of a dead girl in bed, surrounded by boys (retrieved from a loveLife campaign poster)
(h) Photograph of a dying black man in a hospital surrounded by family (retrieved from the book 'HIV/AIDS in Africa' (Mendel, 2002))

To measure the amount of fear induced by the eight selected photographs, in a pretest a convenience sample similar to the target group was asked to compare two photographs at a time and say which photograph they found most terrifying. In total, each of the 34 participants was asked to compare all 28 possible pairs of photographs. Each pair of photographs was placed on a separate page and participants were asked to indicate on a checklist which photograph would make them "more afraid of AIDS" (photograph 1 or 2). This way, the photographs could be rated according to their fear intensity (table 2).

Table 4.1: Rating of photographs A-H by 34 participants in pretest

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	**Total**
A	3	2	2	0	0	1	2	1	0	3	0	0	0	0	2	2	2	1	1	0	0	0	1	0	6	0	3	0	1	0	0	0	0	2	35
B	0	4	7	2	2	3	3	0	5	0	2	4	2	1	5	0	3	5	3	3	3	2	5	2	2	4	1	3	4	2	2	3	4	3	94
C	6	2	1	5	3	2	3	3	2	2	2	3	2	3	0	3	1	4	2	1	1	2	0	3	1	2	3	1	1	5	2	2	2	0	75
D	4	3	0	1	1	1	0	2	1	1	2	1	2	2	1	2	0	1	2	2	2	3	4	1	0	1	1	2	2	1	2	1	1	1	51
E	4	4	3	4	6	3	6	5	3	5	6	5	4	6	6	7	5	3	4	6	6	6	5	4	7	6	4	7	6	7	7	6	7	6	179
F	3	5	6	7	7	7	3	6	7	6	7	7	6	7	7	6	7	6	7	7	7	7	7	7	4	6	6	6	6	3	6	6	4	6	205
G	5	4	4	5	4	5	6	4	4	4	5	2	6	4	4	4	5	4	4	4	5	3	3	6	4	3	5	4	3	5	4	4	5	4	145
H	3	4	5	4	5	6	5	7	6	7	4	6	6	5	3	4	5	4	5	5	4	5	3	5	4	6	5	5	5	5	5	6	5	6	168

The least and the most terrifying photograph were used in the manipulated brochures. Photograph A (eight faces of young people) was considered the least terrifying photograph and photograph F (the young black boy suffering from an AIDS-related skin infection) was considered the most fear-arousing photograph. This corresponds with Pettersson's (2002) statement that faces attract maximum attention and Austin's (1995) suggestion that short-term

effects and physical attractiveness are more important to young people than long-term abstract health dangers. The checklist and photographs can be found in the appendices.

4.2.2 Text message

According the literature regarding HIV/AIDS education for adolescents, the text message had to take several aspects into account. The text message had to personalise the risk of HIV/AIDS infection for adolescents and point out the severity of HIV/AIDS. The effectiveness of the recommended response had to be demonstrated and it had to be made clear that young people would be able to adopt the recommended response. Furthermore, an age-appropriate writing and language style had to be used and the text message had to consider young people's perspective.

The text message used in the experiment was retrieved from the brochure 'Tell me more' from loveLife. The heading was based on S'camtoPRINT issue 37 (20-10-2002): 'Rape. One in three: could be you, could be me.' The susceptibility to the threat and the severity of the threat was mostly evident in the heading and the second paragraph of the text message:

> *HIV/AIDS. One in eight. Could be you, could be me.*

> *But we just don't want to believe that it could happen to us. We don't want to think that our steamy loving with our hot date may be our death certificate. You shouldn't believe that just because you don't have it, it doesn't exist. HIV/AIDS is real, even though we can't see it. There is NO medicine that can make HIV/AIDS go away. Once the virus is in your body, nothing can heal it.*

The self-efficacy message and the efficacy of the recommended response (condom use, delaying sexual debut, reduction of sexual partners) was apparent in (part of) the first paragraph and the third paragraph of the text message:

> *We know it's a very good reason not to rush into having sex and not to sleep around. We know it's also an excellent reason for practising safe sex.*

> *So, what can we do about it? Understand that there are bigger things in life that could be ruined by casual sex, and if you do decide to have sex, make sure it's with somebody you care about – and that you care enough to protect each other. The condom is the surest way to protect us from HIV/AIDS. They're easily available at clinics, chemists, supermarkets, Clicks, community organisations and some public toilets.*

4.3 Design

The research used a between-subjects design: each participant only processed one type of brochure: either the brochure containing the most terrifying photograph, the brochure containing the least terrifying photograph or the brochure without a photograph. This way, a carry-over effect from one type of brochure onto the other could be prevented. To assure a random division of the three types of brochure amongst the participants, a dice was used to determine which type of brochure was given to a participant. The three versions were approximately evenly divided among the genders and the ethnic background of the participants. The following table shows the division of the participants over the three brochures.

Table 4.2: Participants' division over the three brochures

	Brochure without photograph	Brochure with neutral photograph	Brochure with fear-arousing photograph	Total
White male	14	12	12	38
White female	18	11	11	40
Black male	8	15	15	38
Black female	11	13	17	41
Other male			1	1
Other female	4	3	1	8
Total	55	54	57	166

4.4 Instrumentation

All participants received an identical questionnaire, which consisted of four sections:

(1) Introduction
(2) Questions regarding the variables in fear appeal messages
(3) Questions regarding the participant's evaluation of the brochure
(4) Personal questions

In order to validate the instrument, a convenience sample of four people was asked to fill in a questionnaire to establish whether the questions were clear and to detect any possible mistakes. This led to a few minor adjustments in the questionnaire. The questionnaire is included in the appendices.

4.4.1 Introduction

The questionnaire started with instructions in which the procedure of the experiment was explained. It also included an example question, to show participants how to fill in the questionnaire.

4.4.2 Questions regarding the variables in fear appeals messages

The second section was based on the four variables in a fear appeal message from Witte's EPPM (Witte, 1992). The four variables were measured by means of the following seven-point semantic differentials:

(1) Perceived susceptibility:

I think my chances of getting AIDS are:								
Very low	O	O	O	O	O	O	O	Very high

(2) Perceived severity:

I think AIDS is:								
A very serious disease	O	O	O	O	O	O	O	Not a serious disease at all
Very harmful	O	O	O	O	O	O	O	Not harmful at all

(3) Perceived self-efficacy (three different aspects were measured):

I think talking about condom use with my boy/girlfriend is/will be:								
Very easy	O	O	O	O	O	O	O	Not easy at all
I'm convinced that postponing sex till I'm older is:								
Very difficult	O	O	O	O	O	O	O	Not difficult at all
For me, not sleeping around is:								
Not difficult at all	O	O	O	O	O	O	O	Very difficult

(4) Perceived response efficacy (three different aspects were measured):

I think condoms are:		
Very effective in Preventing AIDS	O O O O O O O	Not effective in Preventing AIDS at all
Very pleasant to use	O O O O O O O	Not pleasant to use at all
I'm convinced that postponing sex till I'm older is:		
A very good idea	O O O O O O O	Not a good idea at all
For me, not sleeping around is:		
A very bad idea	O O O O O O O	Not a bad idea at all

Furthermore, two questions were asked regarding the participant's feeling of anxiety while reading the brochure:

When I read the text of the brochure I felt:		
Not horrified at all	O O O O O O O	Very horrified
Very frightened	O O O O O O O	Not frightened at all

4.4.3 Questions regarding the evaluation of the brochure

In the third section participants were asked their opinion concerning the content, writing style and source of the brochure. It started with two open questions:

Is there anything about this brochure that you like very much?
Is there anything about this brochure that you dislike?

Moreover, this section used a series of opinion statements concerning the brochure, each accompanied by a seven-point semantic differential. In total the evaluation of the brochure consisted of twelve questions regarding the presented information and the text in general, five questions regarding the writing style and five questions regarding source credibility. The seven-point semantic differentials used in this section can be found on the next page.

(1) Content:

I think the length of the text is:								
Too long	O	O	O	O	O	O	O	Too short
I think the brochure is:								
Very convincing	O	O	O	O	O	O	O	Not convincing at all
Not informative at all	O	O	O	O	O	O	O	Very informative
Very exaggerated	O	O	O	O	O	O	O	Not exaggerated at all
Very relevant for me	O	O	O	O	O	O	O	Not relevant for me at all
Not motivating at all	O	O	O	O	O	O	O	Very motivating
Not interesting at all	O	O	O	O	O	O	O	Very interesting
Very confusing	O	O	O	O	O	O	O	Not confusing at all
Not believable at all	O	O	O	O	O	O	O	Very believable
Very realistic	O	O	O	O	O	O	O	Not realistic at all
Not useful at all	O	O	O	O	O	O	O	Very useful

(2) Writing style:

I think the way the text was written is:								
Very difficult	O	O	O	O	O	O	O	Not difficult at all
Not formal at all	O	O	O	O	O	O	O	Very formal
Very pleasant	O	O	O	O	O	O	O	Not pleasant at all
Not clear at all	O	O	O	O	O	O	O	Very clear
Not boring at all	O	O	O	O	O	O	O	Very boring

(3) Source credibility:

I think the writer of the text is:								
Very reliable	O	O	O	O	O	O	O	Not reliable at all
Not honest at all	O	O	O	O	O	O	O	Very honest
Not capable at all	O	O	O	O	O	O	O	Very capable
Very friendly	O	O	O	O	O	O	O	Not friendly at all
Very cool	O	O	O	O	O	O	O	Not cool at all

4.4.4 Personal questions

The questionnaire ended with personal questions concerning the participant's demographics, which were included to gain proper insight into the background of each individual. It contained questions regarding age, gender, population group and the native language of the participant. Additionally, the questionnaire included space for participants to give comments on the questionnaire or the brochure.

4.5 Procedure

The questionnaires were handed out at three locations in and around Pretoria, South Africa. The first questionnaires were handed out on Friday 21 November 2003 to adolescents in Mamelodi SOS Children's Village in Mamelodi, a township near Pretoria. The second location was Menlyn Park, a shopping centre in Menlyn, Pretoria, which was visited on Saturday 22 November 2003 and Tuesday 25 November 2003. On 23 November 2003 the last location was visited, Sunnypark Mall, a shopping centre in Sunnyside, Pretoria.

The participants were approached at these locations and asked to participate in the experiment. They were told that the research concerned HIV/AIDS education and they were asked whether they were willing to read a brochure and answer questions regarding the brochure. Since the summer holiday of secondary schools had just started at that time, a lot of adolescents were present on the three locations. Most adolescents approached (some 95%) wanted to participate and were enthusiastic about the research. The experimenter first explained the questionnaire to the participants and the type of questions it contained. They were then asked to read the entire brochure before completing the questionnaire. There was no time limit. The participants were not allowed to discuss the questionnaires among themselves. It took participants 10 to 30 minutes to complete the questionnaire.

5 Results

This chapter discusses the results of the conducted experiment. All retrieved data from the experiment were processed in the statistical programme SPSS 11.0. In order to process the seven-point semantic differentials, all positive poles were placed on the right of the scale (7 points) and all negative poles on the left of the scale (1 point). The results are structured according to the research questions and hypotheses presented in chapter 3.

5.1 The influence of photographs on the variables in fear appeal messages

5.1.1 Perceived severity and perceived susceptibility

First of all, the influence of photographs on the two threat variables in fear appeal messages was analysed: participants' perceived severity of HIV/AIDS and participants' perceived susceptibility to HIV/AIDS. The internal consistency of the two questions regarding perceived severity was good (Cronbach's alpha = .81). Perceived susceptibility was measured by means of one seven-point semantic differential. Table 5.1 shows the mean scores and standard deviation (between brackets) of the perceived severity and perceived susceptibility as a function of brochure version.

Table 5.1: Perceived severity and susceptibility as a function of brochure version

	Without photograph	**Neutral photograph**	**Fear-arousing photograph**
Perceived severity (n=166)	6.38 (1.45)	6.60 (.89)	6.60 (1.33)
Perceived susceptibility (n=165)	2.64 (2.02)	3.00 (2.08)	3.25 (2.39)

These results show that participants' perceived severity of HIV/AIDS scored high (mean score 6.38-6.60), while their perceived susceptibility to HIV/AIDS scored lower (mean score 2.64-3.25). Perceived severity did not differ significantly for the three versions ($F(2,162)=.56$, $p=.57$). Although the participants rated their perceived susceptibility higher after having read the brochures with a photograph, compared to the brochure without a photograph, there was no significant difference ($F(2,162)=1.11$, $p=.33$).

Furthermore, the scores of the product of perceived severity and perceived susceptibility (the perceived threat) were analysed. In table 5.2 the mean scores and standard deviation (between brackets) of the perceived threat (perceived severity * perceived susceptibility) as a function of brochure version can be found.

Table 5.2: Perceived threat as a function of brochure version

	Without photograph	Neutral photograph	Fear-arousing photograph
Perceived threat (n=165)	15.63 (12.36)	19.51 (13.64)	20.92 (16.10)

There was no significant effect of brochure version on participants' perceived threat ($F(2,162)=2.09$, $p=.13$).

5.1.2 Perceived self-efficacy and perceived response efficacy

The internal consistency of participants' perceived self-efficacy and response efficacy of condom use, delaying sexual debut and the reduction of sexual partners was insufficient (respectively Cronbach's alpha=.34 and Cronbach's alpha=.53). Therefore, all questions regarding efficacy were analysed separately. Table 5.3 presents the mean scores and standard deviation (between brackets) of the four questions regarding perceived self-efficacy and the three questions regarding perceived response efficacy in relation with brochure version.

Table 5.3: Perceived self-efficacy and response efficacy as a function of brochure version

	Without photograph	Neutral photograph	Fear-arousing photograph
Perceived self-efficacy:			
– Condom use (n=164)	4.27 (2.40)	5.02 (2.17)	5.02 (2.14)
– Delaying sexual debut (n=155)	4.62 (2.17)	4.37 (2.33)	4.71 (2.31)
– Reduction of sexual partners (n=158)	4.81 (2.39)	5.60 (2.11)	4.85 (2.57)
Perceived response efficacy:			
– Condom use (effective) (n=165)	4.69 (2.21)	5.13 (2.09)	4.89 (2.19)
– Condom use (pleasant) (n=146)	4.32 (2.23)	4.91 (2.20)	4.66 (2.21)
– Delaying sexual debut (n=164)	5.65 (2.07)	5.98 (1.73)	5.88 (1.97)
– Reduction of sexual partners (n=162)	5.11 (2.42)	5.46 (2.30)	5.41 (2.46)

There was no significant effect of brochure version on all three aspects of perceived self-efficacy (condom use: $F(2,161)=2.03$, $p=.14$; delaying sexual debut: $F(2,152)=.30$, $p=.74$; reduction of sexual partners: $F(2,155)=1.79$, $p=.17$). The four questions concerning perceived response efficacy also did not differ significantly for the three versions (condom use (effective): $F(2,162)=.56$, $p=.57$; condom use (pleasant): $F(2,143)=.89$, $p=.41$; delaying sexual debut: $F(2,161)=.38$, $p=.68$; reduction of sexual partners: $F(2,159)=.34$, $p=.72$).

The scores of the product of perceived self-efficacy and perceived response efficacy (the perceived efficacy) were also analysed. Table 5.4 shows the mean scores and standard deviation (between brackets) of the questions regarding perceived efficacy (perceived self-efficacy * perceived response efficacy) as a function of brochure version.

Table 5.4: Perceived efficacy as a function of brochure version

	Without photograph	**Neutral photograph**	**Fear-arousing photograph**
Perceived efficacy:			
– Condom use (effective) (n=163)	20.87 (16.44)	25.71 (15.14)	24.84 (16.96)
– Condom use (pleasant) (n=146)	19.79 (16.91)	24.02 (16.14)	24.23 (15.58)
– Delaying sexual debut (n=164)	27.38 (16.88)	26.69 (17.18)	28.65 (17.77)
– Reduction of sexual partners (n=162)	28.17 (18.97)	32.81 (18.80)	28.07 (20.20)

There was no significant effect of brochure version on all four aspects of perceived efficacy (condom use (effective): $F(2,160)=1.37$, $p=.26$; condom use (pleasant): $F(2,143)=1.20$, $p=.30$: delaying sexual debut: $F(2,150)=.17$, $p=.85$); reduction of sexual partners: $F(2,151)=.97$, $p=.38$).

5.2 Relationship between perceived threat, efficacy and fear

In order to analyse the relationship between the variables of fear appeal messages according Witte's EPPM (1992), the following three aspects were combined:

(1) the *product* of South African adolescents' *perceived severity* and *perceived susceptibility* to HIV/AIDS (*perceived threat*);
(2) the *product* of South African adolescents' *perceived self-efficacy* and *perceived response efficacy* (*perceived efficacy*), and
(3) South African adolescents' induced *fear* after reading the brochure.

The three aspects were recoded into low (score 1), medium (score 2) and high (score 3). Since the internal consistency of participants' perceived self-efficacy and response efficacy of condom use, delaying sexual debut and the reduction of sexual partners was insufficient (respectively Cronbach's alpha=.34 and Cronbach's alpha=.53), all questions regarding efficacy were analysed separately. Table 5.5 presents the mean scores and standard deviation (between brackets) of induced fear as a function of perceived threat and perceived efficacy of condom use (effective).

Table 5.5: Induced fear as a function of perceived threat, efficacy of condom use (effective)

	Low perceived threat (n=92)	**Medium perceived threat** (n=39)	**High perceived threat** (n=29)	**Total perceived threat** (n=160)
Low perceived efficacy (n=66)	1.89 (.76)	1.94 (.64)	2.00 (.91)	1.92 (.75)
Medium perceived efficacy (n=47)	1.89 (.57)	1.75 (.62)	1.71 (.76)	1.83 (.60)
High perceived efficacy (n=47)	1.52 (.57)	1.56 (.73)	1.78 (.76)	1.57 (.65)
Total perceived efficacy (n=160)	1.77 (.67)	1.79 (.66)	1.86 (.83)	1.79 (.69)

These results show that participants' induced fear was highest when perceived threat was high or medium and perceived efficacy was low (mean scores of 2.00 and 1.94), while induced fear was lowest when perceived threat was low or medium and perceived efficacy was low (mean scores of 1.52 and 1.56).

Table 5.6 shows the mean scores and standard deviation (between brackets) of induced fear as a function of perceived threat and perceived efficacy of condom use (pleasant).

Table 5.6: Induced fear as a function of perceived threat, efficacy of condom use (pleasant)

	Low perceived threat (n=84)	**Medium perceived threat** (n=35)	**High perceived threat** (n=25)	**Total perceived threat** (n=144)
Low perceived efficacy (n=58)	1.90 (.77)	1.72 (.67)	2.00 (.89)	1.86 (.76)
Medium perceived efficacy (n=45)	1.78 (.51)	1.80 (.42)	2.00 (.76)	1.82 (.54)
High perceived efficacy (n=41)	1.75 (.75)	1.71 (.76)	1.50 (.84)	1.71 (.75)
Total perceived efficacy (n=144)	1.81 (.69)	1.74 (.61)	1.88 (.83)	1.81 (.69)

According to these results participants' induced fear was highest when perceived threat was high and perceived efficacy was low or medium (mean scores of 2.00), while induced fear was lowest when perceived threat was high and perceived efficacy was high (mean score of 1.50).

In table 5.7 the mean scores and standard deviation (between brackets) of induced fear as a function of perceived threat and perceived efficacy of delaying sexual debut can be found.

Table 5.7: Induced fear as a function of perceived threat, efficacy of delaying sexual debut

	Low perceived threat (n=89)	**Medium perceived threat** (n=35)	**High perceived threat** (n=27)	**Total perceived threat** (n=151)
Low perceived efficacy (n=49)	1.80 (.65)	1.87 (.74)	1.56 (.73)	1.78 (.69)
Medium perceived efficacy (n=36)	1.83 (.65)	1.88 (.35)	2.20 (.84)	1.89 (.62)
High perceived efficacy (n=66)	1.71 (.68)	1.75 (.62)	1.92 (.86)	1.76 (.70)
Total perceived efficacy (n=151)	1.76 (.66)	1.83 (.62)	1.85 (.82)	1.79 (.68)

These results show that participants' induced fear was highest when perceived threat was high and perceived efficacy was medium or high (mean scores of 2.20 and 1.92). Induced fear was lowest when perceived threat was high and perceived efficacy was low (mean score of 1.56).

Table 5.8 presents the mean scores and standard deviation (between brackets) of induced fear as a function of perceived threat and perceived efficacy of reduction of sexual partners.

Table 5.8: Induced fear as a function of perceived threat, efficacy of reduction sexual partners

	Low perceived threat (n=90)	**Medium perceived threat** (n=34)	**High perceived threat** (n=28)	**Total perceived threat** (n=152)
Low perceived efficacy (n=49)	1.85 (.68)	2.00 (.58)	1.70 (.82)	1.86 (.68)
Medium perceived efficacy (n=24)	1.73 (.65)	1.60 (.70)	1.67 (1.16)	1.67 (.70)
High perceived efficacy (n=79)	1.72 (.66)	1.73 (.65)	1.93 (.80)	1.76 (.68)
Total perceived efficacy (n=152)	1.76 (.66)	1.79 (.64)	1.82 (.82)	1.78 (.68)

Table 5.8 shows that participants' induced fear was highest when perceived threat was medium and perceived efficacy was low (mean score of 2.00), and when perceived threat was high and perceived efficacy was high (mean score of 1.93). Induced fear was lowest when perceived threat was medium and perceived efficacy was medium or high (mean scores of 1.60 and 1.67).

5.3 Relationship between perceived threat, efficacy and content evaluation

In order to analyse the relationship between participants' *perceived threat* (perceived severity * perceived susceptibility), *perceived efficacy* (perceived self-efficacy * perceived response efficacy) and *content* evaluation of the brochure, the answers were recoded into low (score 1), medium (score 2) and high (score 3). All questions regarding efficacy were analysed separately. Table 5.9 presents the mean scores and standard deviation (between brackets) of content evaluation as a function of perceived threat and perceived efficacy of condom use (effective).

Table 5.9: Content evaluation as a function of perceived threat, efficacy of condom use (effective)

	Low perceived threat (n=94)	**Medium perceived threat** (n=39)	**High perceived threat** (n=29)	**Total perceived threat** (n=162)
Low perceived efficacy (n=66)	2.20 (.41)	2.44 (.51)	2.38 (.51)	2.30 (.46)
Medium perceived efficacy (n=47)	2.29 (.46)	2.25 (.45)	2.43 (.54)	2.30 (.46)
High perceived efficacy (n=49)	2.29 (.46)	2.33 (.50)	2.56 (.53)	2.35 (.48)
Total perceived efficacy (n=162)	2.26 (.44)	2.36 (.49)	2.45 (.51)	2.31 (.47)

Table 5.9 shows that participants' content evaluation was highest when perceived threat was high and perceived efficacy was high (mean score of 2.56), while content evaluation was lowest when perceived threat was low and perceived efficacy was low (mean score of 2.20).

Table 5.10 shows the mean scores and standard deviation (between brackets) of content evaluation as a function of perceived threat and perceived efficacy of condom use (pleasant).

Table 5.10: Content evaluation as a function of perceived threat, efficacy of condom use (pleasant)

	Low perceived threat (n=85)	**Medium perceived threat** (n=35)	**High perceived threat** (n=25)	**Total perceived threat** (n=145)
Low perceived efficacy (n=59)	2.20 (.41)	2.33 (.49)	2.36 (.51)	2.27 (.45)
Medium perceived efficacy (n=45)	2.22 (.42)	2.30 (.48)	2.62 (.52)	2.31 (.47)
High perceived efficacy (n=41)	2.32 (.48)	2.57 (.54)	2.33 (.52)	2.37 (.49)
Total perceived efficacy (n=145)	2.25 (.43)	2.37 (.49)	2.44 (.51)	2.31 (.46)

According to these results, participants' content evaluation was highest when perceived threat was high and perceived efficacy was medium (mean score of 2.62), and when perceived threat was medium and perceived efficacy was high (mean score of 2.57). Content evaluation was lowest when perceived threat was low and perceived efficacy was low or medium (mean scores of 2.20 and 2.22).

The mean scores and standard deviation (between brackets) of content evaluation as a function of perceived threat and perceived efficacy of delaying sexual debut can be found in table 5.11.

Table 5.11: Content evaluation as a function of perceived threat, efficacy of delaying sexual debut

	Low perceived threat (n=90)	**Medium perceived threat** (n=35)	**High perceived threat** (n=27)	**Total perceived threat** (n=152)
Low perceived efficacy (n=50)	2.23 (.43)	2.33 (.49)	2.67 (.50)	2.34 (.48)
Medium perceived efficacy (n=36)	2.22 (.42)	2.50 (.54)	2.40 (.55)	2.31 (.47)
High perceived efficacy (n=66)	2.32 (.47)	2.25 (.45)	2.31 (.48)	2.30 (.46)
Total perceived efficacy (n=152)	2.27 (.45)	2.34 (.48)	2.44 (.51)	2.32 (.47)

These results show that participants' content evaluation was highest when perceived threat was high and perceived efficacy was low (mean score of 2.67), and when perceived threat was medium and perceived efficacy was medium (mean score of 2.50). Content evaluation was lowest when perceived threat was low and perceived efficacy was low or medium (mean scores of 2.22 and 2.23).

Table 5.12 presents the mean scores and standard deviation (between brackets) of content evaluation as a function of perceived threat and perceived efficacy of reduction of sexual partners.

Table 5.12: Content evaluation as function of perceived threat, efficacy of reduction sexual partners

	Low perceived threat (n=91)	**Medium perceived threat** (n=34)	**High perceived threat** (n=28)	**Total perceived threat** (n=153)
Low perceived efficacy (n=49)	2.23 (.43)	2.23 (.44)	2.40 (.52)	2.27 (.45)
Medium perceived efficacy (n=25)	2.08 (.29)	2.50 (.53)	2.67 (.58)	2.32 (.48)
High perceived efficacy (n=79)	2.32 (.47)	2.36 (.51)	2.40 (.51)	2.34 (.48)
Total perceived efficacy (n=152)	2.26 (.44)	2.35 (.49)	2.43 (.50)	2.31 (.47)

Table 5.12 shows that participants' content evaluation was highest when perceived threat was high or medium and perceived efficacy was medium (mean scores of 2.67 and 2.50), while content evaluation was lowest when perceived threat was low and perceived efficacy was medium (mean score of 2.08).

5.4 The influence of photographs on the evaluation of the fear appeal message

5.4.1 Content

First of all, participants evaluated the length of the text. A Chi-square test showed there was no significant effect for the three brochures for this aspect (p=.67). The reliability analysis for the remaining questions concerning the content of the message, showed that the internal consistency was moderate (Cronbach's alpha=.67). Table 5.13 shows the mean scores and standard deviation (between brackets) of participants' evaluation of the content of the message as a function of brochure version.

Table 5.13: Evaluation content as a function of brochure version

	Without photograph	Neutral photograph	Fear-arousing photograph
Evaluation content (n=166)	5.28 (.78)	5.66 (.88)	5.42 (.97)

The difference in content evaluation of the brochure without a photograph compared to the brochure with a neutral photograph, approached significance (F(2,163)=2.57, p=.08),.

5.4.2 Writing style

The internal consistency of the questions regarding the evaluation of the writing style was insufficient (Cronbach's alpha=.31). Therefore, the five questions regarding writing style were analysed separately. Table 5.14 presents the mean scores, standard deviation (between brackets) and significance of the five questions in relation with brochure version.

Table 5.14: Evaluation writing style as a function of brochure version

	Without photograph	Neutral photograph	Fear-arousing photograph	Significance
Difficult (n=162)	5.94 (1.66)	5.60 (1.79)	5.98 (1.57)	F(2,159)=.86, p=.43
Formal (n=161)	3.52 (1.88)	3.52 (2.05)	3.87 (2.20)	F(2,158)=.54, p=.58
Pleasant (n=162)	4.67 (1.74)	5.19 (1.84)	4.78 (1.87)	F(2,159)=1.21, p=.30
Clear (n=164)	5.87 (1.29)	6.31 (1.06)	6.21 (1.12)	F(2,161)=2.18, p=.12
Boring (n=161)	4.83 (1.75)	5.46 (1.67)	5.09 (1.74)	F(2,158)=1.78, p=.17

Table 5.14 shows that participants did not find the writing style of the text very difficult (mean score 5.60-5.98). The formality of the writing style was not rated extremely formal or informal (mean score 3.52-3.87). Participants found the writing style rather pleasant, clear and not very boring (respectively mean scores 4.67-5.19, 5.87-6.31, and 4.83-5.46). The table indicates that there was no significant effect of version on the evaluation of the writing style.

5.4.3 Source credibility

The reliability analysis for the five questions concerning the source credibility showed that the internal consistency for this aspect was moderate (Cronbach's alpha=.64). Table 5.15 shows the mean scores and standard deviation (between brackets) of participants' evaluation of the source credibility in relation with brochure version.

Table 5.15: Evaluation source credibility as a function of brochure version

	Without photograph	Neutral photograph	Fear-arousing photograph
Evaluation source credibility (n=166)	5.10 (1.10)	5.44 (1.23)	5.67 (1.29)

There was a significant effect of brochure version on the evaluation of source credibility ($F(2,163)=3.10$, $p=.048$). According to the post hoc analysis, participants rated the source credibility of the brochure with the fear-arousing photograph significantly higher than the source credibility of the brochure without a photograph. The source credibility of the brochure with a neutral photograph was not rated significantly different from the brochure without a photograph and the brochure with a fear-arousing photograph.

5.5 Interaction effects

All possible interaction effects between the type of brochure and the participants' characteristics (age, gender and ethnic background) on the variables in fear appeal messages (perceived severity, susceptibility, self-efficacy and response efficacy) and the evaluation of the fear appeal message (content, writing style and source credibility) were analysed. In this section all statistically significant interaction effects are discussed. While analysing interaction effects, several main effects regarding participants' characteristics with regard to age, gender and ethnic background were found. These main effects are also presented in this section.

5.5.1 Perceived severity and perceived susceptibility

No interaction effects between the type of brochure and the participants' characteristics on the two threat variables in a fear appeal message were found. However, three main effects regarding the two threat variables were found. First of all, a significant main effect of age on participants' perceived severity of HIV/AIDS was found. Participants were categorised in two age groups: (1) participants from 12 to 15 years of age, and (2) participants from 16 to 19 years of age. Table 5.16 shows the mean scores and standard deviation (between brackets) of participants' perceived severity of HIV/AIDS as a function of age.

Table 5.16: Perceived severity as a function of age

	Age 12-15	Age 16-19
Perceived severity (n=166)	6.29 (1.46)	6.70 (1.04)

Participants from 12 to 15 years of age perceived the severity of HIV/AIDS significantly lower than participants from 16 to 19 years of age (F(1,164)=4.37, p=.04).

Table 5.17 presents the mean scores and standard deviation (between brackets) of participants' perceived severity of HIV/AIDS and their perceived susceptibility to HIV/AIDS as a function of ethnic background.

Table 5.17: Perceived severity as a function of ethnic background

	Black	**White**	**Other**
Perceived severity (n=166)	6.25 (1.55)	6.79 (.84)	6.67 (.66)
Perceived susceptibility (n=165)	3.49 (2.46)	2.41 (1.75)	3.22 (1.86)

There was a significant effect of ethnic background on participants' perceived severity of HIV/AIDS and their perceived susceptibility to HIV/AIDS (perceived severity: F(2,163)=4.00, p=.02 and perceived susceptibility: F(2,162)=5.10, p=.01). According to the post hoc analysis, white participants perceived the severity of HIV/AIDS as significantly higher than black participants, while black participants perceived their susceptibility to HIV/AIDS as significantly higher than white participants.

5.5.2 Perceived self-efficacy and perceived response efficacy

All questions concerning self-efficacy and response efficacy were analysed separately. The analyses showed an interaction effect of brochure version and age on perceived response efficacy of the reduction of sexual partners that approached significance (F(2,156)=2.69, p=.07). The mean scores and standard deviation (between brackets) of participants' perceived response efficacy of the reduction of sexual partners as a function of brochure version and age can be found in table 5.18.

Table 5.18: Response efficacy reduction of sexual partners as a function of version and age

	Without photograph		**Neutral photograph**		**Fear-arousing photograph**	
	12-15	**16-19**	**12-15**	**16-19**	**12-15**	**16-19**
Response efficacy reduction sexual partners (n=166)	5.41 (2.40)	4.91 (2.45)	4.63 (2.73)	6.18 (1.57)	5.43 (2.69)	5.39 (2.32)

Additionally, a main effect of gender on the perceived efficacy of delaying sexual debut was found. Boys perceived both their self-efficacy and the response efficacy of delaying sexual debut as significantly lower than girls (self-efficacy: F(1,153)=14.25, p=.00 and response efficacy: F(1,162)=10.50, p=.00). Table 5.19 presents the mean scores and standard deviation (between brackets) of participants' perceived self-efficacy and response efficacy of delaying sexual debut as a function of gender.

Table 5.19: Perceived efficacy of delaying sexual debut as a function of gender

	Boy	**Girl**
Perceived self-efficacy delaying sexual debut (n=155)	3.86 (2.41)	5.18 (1.94)
Perceived response efficacy delaying sexual debut (n=164)	5.31 (2.19)	6.28 (1.66)

5.5.3 Evaluation of content

First of all, a significant main effect of age on participants' evaluation of the content of the fear appeal message was found. Participants from 16 to 19 years of age evaluated the content of the message significantly more positive than participants from 12 to 15 years of age (F(1,164)=4.26, p=.04). The mean scores and standard deviation (between brackets) of participants' evaluation of content as a function of age can be found in table 5.20.

Table 5.20: Evaluation content as a function of age

	Age 12-15	**Age 16-19**
Evaluation content (n=166)	5.29 (.87)	5.57 (.89)

Interaction effects for each question regarding the content of the fear appeal message were also analysed. As a result of this, two interaction effects that approached significance and one significant main effect was found. The interaction effects of brochure version and age on two questions concerning the evaluation of the content approached significance (convincing: F(2,156)=2.89, p=0.58; interesting: F(2,153)=2.81, p=.063). Table 5.21 shows the mean scores and standard deviation (between brackets) of these two questions regarding the content of the message as a function of brochure version and age.

Table 5.21: Evaluation content (convincing and interesting) as a function of version and age

	Without photograph		Neutral photograph		Fear-arousing photograph	
	12-15	**16-19**	**12-15**	**16-19**	**12-15**	**16-19**
Convincing (n=162)	4.67 (1.83)	5.45 (1.52)	4.88 (1.87)	5.86 (1.24)	5.61 (2.02)	5.12 (1.82)
Interesting (n=159)	4.95 (1.56)	5.06 (1.81)	5.29 (1.37)	5.71 (1.63)	5.83 (1.80)	4.77 (1.78)

Table 5.22 presents the mean scores and standard deviation (between brackets) of participants' evaluation of the relevancy of the content in relation with ethnic background.

Table 5.22: Evaluation content (relevant) as a function of ethnic background

	Black	**White**	**Other**
Relevant (n=165)	5.27 (1.81)	4.21 (1.93)	5.33 (1.87)

There was a significant effect of ethnic background on the evaluation of the relevancy of the content ($F(2,156)=6.54$, $p=.00$). According to the post hoc analysis, black participants rated the content of the fear appeal message as more relevant than white participants.

5.5.4 Evaluation of writing style

All questions regarding the evaluation of the writing style of the fear appeal message were analysed separately. Two main effects concerning age and two main effects concerning ethnic background of the participants on the evaluation of the writing style were found. Table 5.23 shows the mean scores and standard deviation (between brackets) of two questions regarding the writing style of the message as a function of age.

Table 5.23: Evaluation writing style (difficult and clear) as a function of age

	Age 12-15	**Age 16-19**
Difficult (n=162)	5.49 (1.89)	6.12 (1.44)
Clear (n=164)	5.91 (1.26)	6.29 (1.08)

These results show that participants from 16 to 19 years of age found the writing style significantly less difficult and clearer than participants from 12 to 15 years of age (difficult F(1,160)=5.90, p=0.016; F(1,162)=4.34, p=0.039).

The mean scores and standard deviation (between brackets) of two questions regarding the writing style of the message as a function of ethnic background can be found in table 5.24.

Table 5.24: Evaluation writing style (pleasant and boring) as a function of ethnic background

	Black	**White**	**Other**
Pleasant (n=162)	5.37 (1.81)	4.40 (1.77)	4.78 (1.30)
Boring (n=161)	5.52 (1.78)	4.75 (1.61)	5.00 (1.80)

There was a significant effect of ethnic background on the evaluation of the writing style (pleasant and boring) (pleasant: F(2,159)=5.71, p=.00; boring: F(2,158)=3.89, p=.02). According to the post hoc analysis, black participants rated the writing style of the fear appeal message as more pleasant and less boring than white participants.

5.5.5 Evaluation of source credibility

No interaction effects were found with regard to the clustered evaluation of the source credibility. Therefore, each of the five questions was also analysed separately. The analyses showed a significant interaction effect of brochure version and age on two aspects of the source credibility: reliable (F(2,155)=3.17, p=0.045) and honest (F(2,158)=3.10, p=0.048). The mean scores and standard deviation (between brackets) of two questions regarding the evaluation of the source credibility as a function brochure version and age can be found in table 5.25.

Table 5.25: Evaluation source credibility (reliable and honest) as a function of version and age

	Without photograph		**Neutral photograph**		**Fear-arousing photograph**	
	12-15	**16-19**	**12-15**	**16-19**	**12-15**	**16-19**
Reliable (n=162)	4.95 (1.53)	5.25 (1.50)	5.17 (1.88)	6.18 (1.16)	6.13 (1.22)	5.72 (1.35)
Honest (n=159)	6.00 (.93)	6.13 (1.24)	5.25 (1.96)	6.47 (.90)	6.00 (1.60)	6.12 (1.08)

Furthermore, the analyses showed two main effects: a main effect of age on one aspect of source credibility, capable (table 5.26), and a main effect of ethnic background on another aspect of source credibility, cool (table 5.27).

Table 5.26: Evaluation source credibility (capable) as a function of age

	Age 12-15	**Age 16-19**
Capable (n=161)	5.33 (1.60)	6.02 (1.25)

Table 5.27: Evaluation source credibility (cool) as a function of ethnic background

	Black	**White**	**Other**
Cool (n=160)	5.56 (1.80)	4.75 (1.77)	4.25 (1.49)

Participants from 16 to 19 years of age perceived the capability of the source significantly higher than participants from 12 to 15 years of age ($F(1,159)=9.42$, $p=.00$). Additionally, according to the post hoc analysis, black participants found the source significantly cooler than white participants ($F(2,157)=4.91$, $p=0.01$).

6 Conclusions, discussion and recommendations

This research aimed to increase the knowledge of the role that photographs can play in the perception of fear appeal messages in South Africa. It focused on the use of photographs in a fear appeal brochure promoting safer sex targeting South African adolescents in the age group 12 to 19 years old. This chapter presents the conclusions and discussion that can be drawn from the conducted experiment.

6.1 Conclusions

In this section the conclusions from the experiment are discussed with the help of the null hypotheses formulated in chapter 3.

6.1.1 Hypotheses regarding the variables in fear appeal messages

(a) All brochures will have the same effect on South African adolescents' perceived severity of HIV/AIDS.

The results show that participants who read the brochures with the neutral photograph and the fear-arousing photograph, perceived the severity of HIV/AIDS as higher than participants who read the brochure without a photograph. However, the differences in perceived severity were not significant for the three brochure versions.

(b) All brochures will have the same effect on South African adolescents' perceived susceptibility to HIV/AIDS.

According to the results, participants rated their perceived susceptibility higher after having read any of the brochures containing a photograph, compared to the brochure without a photograph. However, there were no significant differences between the mean scores.

Furthermore, the product of perceived severity and perceived susceptibility (perceived threat) as a function of brochure version was analysed. However, no significant effects of brochure version on participants' perception of threat were found.

(c) All brochures will have the same effect on South African adolescents' perceived self-efficacy in condom use, delaying sexual debut and the reduction of sexual partners.
(d) All brochures will have the same effect on South African adolescents' perceived response efficacy of condom use, delaying sexual debut and the reduction of sexual partners.

The results affirmed these null hypotheses. No significant effects of brochure version on all three aspects of perceived self-efficacy and response efficacy were found. Moreover, there

were no significant effects of the product of perceived self-efficacy and perceived response efficacy (perceived efficacy) as a function of brochure version.

6.1.2 Hypotheses regarding the relationship between variables of fear appeal messages

(a) No relationship exists between (1) the product of South African adolescents' perceived severity and perceived susceptibility to HIV/AIDS, (2) the product of South African adolescents' perceived self-efficacy and perceived response efficacy of condom use, delaying sexual debut and the reduction of sexual partners on the one hand, and (3) South African adolescents' induced fear after reading the brochure on the other hand.

This hypothesis was analysed separately for each aspect of efficacy (condom use, delaying sexual debut, reduction of sexual partners). Results were different for each combination of threat and the four efficacy aspects:

(1) Condom use (effective):
- The combination high/medium threat + low efficacy (HTLE) induced the most fear.
- The combination low/medium threat + low efficacy (LTLE) induced the least fear.

(2) Condom use (pleasant):
- The combination high threat + low/medium efficacy (HTLE) induced the most fear.
- The combination high threat + high efficacy (HTHE) induced the least fear.

(3) Delaying sexual debut:
- The combination high threat + medium/high efficacy (HTHE) induced the most fear.
- The combination high threat + low efficacy (HTLE) induced the least fear.

(4) Reduction of sexual partners:
- The combination medium threat + low efficacy (MTLE) and the combination high threat + high efficacy (HTHE) induced the most fear.
- The combination medium threat + medium/high efficacy (MTHE) induced the least fear.

Thus, the results are equivocal with respect to the relationship between these variables. This will be discussed further in the discussion section.

(b) No relationship exists between (1) the product of South African adolescents' perceived severity and perceived susceptibility to HIV/AIDS, (2) the product of South African adolescents' perceived self-efficacy and perceived response efficacy of condom use, delaying sexual debut and the reduction of sexual partners on the one hand, and (3) South African adolescents' evaluation of the content of the brochure on the other hand.

Participants' evaluation of the content was different for each combination of threat and the four aspects of efficacy (condom use (pleasant and effective), delaying sexual debut, reduction of sex partners):

(1) Condom use (effective):
- The combination high threat + high efficacy (HTHE) was evaluated highest.
- The combination low threat + low efficacy (LTLE) was evaluated lowest.

(2) Condom use (pleasant):
- The combination high threat + medium efficacy (HTME) and the combination medium threat + high efficacy (MTHE) was evaluated highest.
- The combination low threat + low/medium efficacy (LTLE) was evaluated lowest.

(3) Delaying sexual debut:
- The combination high threat + low efficacy (HTLE) and the combination medium threat and medium efficacy (MTME) was evaluated highest.
- The combination low threat + low/medium efficacy (HTLE) was evaluated lowest.

(4) Reduction of sexual partners:
- The combination medium/high threat + medium efficacy (HTME) was evaluated highest.
- The combination low threat + medium efficacy (LTME) was evaluated lowest.

The results do not show a clear relationship between the variables. In the discussion section the results regarding this hypothesis will be discussed further.

6.1.3 Hypotheses regarding the evaluation of the fear appeal message

(a) South African adolescents will evaluate the content of all brochures equally.

Participants evaluated the content of the brochure more positively after having read the brochure with a neutral photograph, compared to the brochure without a photograph. This difference in content evaluation approached significance.

(b) South African adolescents will evaluate the writing style of all brochures equally.

The results affirm this hypothesis: there were no significant effects of version on the evaluation of the writing style.

(c) South African adolescents will evaluate the source credibility of all brochures equally.

This hypothesis can be rejected. Participants rated the source credibility of the brochure with the fear-arousing photograph significantly higher than the source credibility of the brochure without a photograph. The source credibility of the brochure with a neutral photograph was rated higher than the source credibility of the brochure without a photograph and was rated lower than the brochure with a fear-arousing photograph. However, these differences were not significant.

6.1.4 Hypotheses regarding interaction effects

(a) The type of brochure and age will not interact on South African adolescents' perceived severity of HIV/AIDS, perceived susceptibility to HIV/AIDS, perceived response and perceived self-efficacy in condom use, delaying sexual debut and the reduction of sexual partners.

One interaction effect that approached significance was found of brochure version and age on perceived response efficacy with regard to the reduction of sexual partners. The brochure with the neutral photograph was rated lower than expected by participants from 12 to 15 years of age and much higher than expected by participants from 16 to 19 years of age.

(b) The type of brochure and gender will not interact on South African adolescents' perceived severity of HIV/AIDS, perceived susceptibility to HIV/AIDS, perceived response and perceived self-efficacy in condom use, delaying sexual debut and the reduction of sexual partners.

(c) The type of brochure and ethnic background will not interact on South African adolescents' perceived severity of HIV/AIDS, perceived susceptibility to HIV/AIDS, perceived response and perceived self-efficacy in condom use, delaying sexual debut and the reduction of sexual partners.

These hypotheses can be confirmed. No significant interaction effects were found with regard to these aspects.

(d) The type of brochure and age will not interact on South African adolescents' evaluation of the content, writing style and source credibility of the brochure.

Two interaction effects that approached significance were found with regard to brochure version and age on the evaluation of the content (convincing and interesting). Participants from 12 to 15 years of age evaluated the content (convincing and interesting) of the brochure with the fear-arousing photograph much higher than expected, while content evaluation of the fear-arousing photograph from participants from 16 to 19 years was lower than expected.

Results showed two significant interaction effects of brochure version and age on two aspects of the evaluation of source credibility (reliable, honest). Participants rated the brochure without photograph and the brochure with the fear-arousing photograph approximately the same with regard to honesty. However, participants aged 12 to 15 years evaluated the source of the brochure with a neutral photograph as less honest than expected, while participants from 16 to 19 years of age evaluated the source of the brochure with a neutral photograph much higher than expected.

(e) The type of brochure and gender will not interact on South African adolescents' evaluation of the content, writing style and source credibility of the brochure.

(f) The type of brochure and ethnic background will not interact with South African adolescents' evaluation of the content, writing style and source credibility of the brochure.

These hypotheses can be confirmed. No significant interaction effects were found with regard to these aspects.

6.1.5 Main effects regarding age, gender and ethnic variables

Several main effects were found with regard to age and the variables of the experiment. First of all, participants from 12 to 15 years of age perceived the severity of HIV/AIDS significantly lower than participants from 16 to 19 years of age. Furthermore, participants aged 16 to 19 evaluated several aspects of the brochure more positively, compared to participants aged 12 to 15. Participants aged 16 to 19 evaluated the content of the message significantly more positive than participants aged 12 to 15. Older participants also evaluated the writing style of the message significantly less difficult and clearer than younger participants. Finally, the capability of the source was rated significantly higher by participants from 16 to 19 years of age, compared to participants from 12 to 15 years of age.

One main effect of gender was found on the perceived efficacy of delaying sexual debut. Boys perceived both their self-efficacy and the response efficacy of delaying sexual debut as significantly lower than girls.

There was a significant effect of ethnic background on participants' perceived severity of HIV/AIDS and their perceived susceptibility to HIV/AIDS. White participants perceived the severity of HIV/AIDS as significantly higher than black participants, while black participants perceived their susceptibility to HIV/AIDS as significantly higher than white participants. Moreover, black participants evaluated the content of the brochure as significantly more relevant, rated the writing style as significantly more pleasant and significantly less boring, and found the source significantly cooler, compared to white participants.

6.2 Discussion

6.2.1 Variables of fear appeal messages

On the basis of the literature discussed in chapter 2, it was expected that a fear-arousing photograph could contribute to the vividness of the threat component of a fear appeal message. In this experiment, perceived severity of HIV/AIDS and perceived susceptibility to HIV/AIDS was rated higher by participants who read the brochure with a fear-arousing photograph, but these differences were not significant. Thus, in this experiment the fear-arousing photograph did not significantly increase participants' perceived threat.

A few interesting main effects were found with regard to participants' perceived threat. In this experiment, white participants perceived the severity of HIV/AIDS as significantly higher than black participants. However, black participants perceived their susceptibility to HIV/AIDS as

significantly higher than white participants. According to a representative study (HSRC, 2002), HIV/AIDS prevalence among black South Africans (12.9%) is higher than HIV/AIDS prevalence among white South Africans (6.2%). Therefore, this difference in participants' susceptibility perceptions seems to be relatively realistic. Furthermore, participants aged 12 to 15 perceived the severity of HIV/AIDS significantly lower than participants from 16 to 19 years of age. This confirms Perloff's (2001) statement that young people in particular find it difficult to imagine negative consequences that could occur in the far future.

Research concerning images and fear appeals does not suggest an effect of images on the perceived efficacy of a fear appeal message. The results of this experiment confirm this; all brochures had the same effect on participants' perceived self-efficacy and perceived response efficacy.

Analyses showed that boys perceived both their self-efficacy and the response efficacy of delaying sexual debut as significantly lower than girls. This could be due to gender roles in South Africa. However, South African gender roles were not discussed in this study.

6.2.2 Relationship between variables of fear appeal messages

According to the EPPM (Witte, 1992), people can respond to fear appeal messages in three ways. Fear control responses occur when a person's perceived threat is high, while his/her perceived efficacy is low (HTLE). According to Witte (1992), 'fear causes maladaptive responses, and may indirectly influence adaptive responses, as mediated by perceived threat' (p. 338). Therefore, it was expected that induced fear would be highest when participants' perceived threat was high and their perceived efficacy was low (HTLE). Results are equivocal in this respect. With regard to condom use and the reduction of sexual partners, induced fear was indeed highest for the combination high threat + low efficacy (HTLE) (condom use) and medium threat + low efficacy (MTLE) (reduction of sexual partners). However, this combination (HTLE) induced the least fear with regard to delaying sexual debut. Thus, the results of the experiment do not completely confirm the predictions regarding fear control responses of the EPPM.

With regard to danger control responses, the EPPM (Witte, 1992) predicts that the high threat + high efficacy (HTHE) combination would be most persuasive, while the other three combinations (HTLE, LTHE and LTLE) would not be significantly different from each other. Therefore, it was expected that participants' would evaluate the content of the brochure highest when both their perceived threat and their perceived efficacy was high (HTHE). The additive model (mentioned in Witte & Allen, 2000) predicts that higher levels of each of the variables will lead to higher means. In the additive model threat and efficacy are treated independent. The data of Witte and Allen (2000) favoured the additive model over the EPPM.

Results of this study do not completely confirm the expectations of both models. With regard to condom use and the reduction of sexual partners, results are approximately consistent with the predictions of the EPPM, but results appear to comply more with the additive model than with the EPPM. For these three efficacy aspects, participants evaluated the content highest for the combinations high threat + high efficacy (HTHE) (condom use (effective)), medium threat + high efficacy (MTHE) (condom use (pleasant) and high threat + medium efficacy (HTME) (condom use (pleasant) and reduction of sexual partners). However, with regard to sexual debut, content evaluation was highest for the combinations high threat + low efficacy (HTLE) and medium threat + medium efficacy (MTME) (which was not expected according the EPPM and the additive model). Thus, results are not completely consistent with the predictions of the EPPM and the additive model regarding danger control responses.

In conclusion, both the results found for the fear control and danger control processes indicate a different relationship between the variables with regard to delaying sexual debut compared to the other three efficacy aspects (condom use (effective), condom use (pleasant) and reduction of sexual partners). The results regarding delaying of sexual debut do not confirm the predictions of the EPPM, while the other three efficacy aspects are approximately in accordance with the EPPM. This difference in results could be due to the different sexual experiences of the respondents. Younger respondents are less likely to have had their sexual debut, while older respondents are more likely to have had sexual experiences in the past. Kelly, Parker and Oyosi (2001) point out that there is strong evidence that first sexual intercourse for girls is often coerced. For these girls delaying sexual debut is not an option. This could have influenced the answers of the respondents. However, in this study no data was collected concerning past sexual experiences of the respondents.

6.2.3 Evaluation of the fear appeal message

As discussed in chapter 2, research indicated that (1) images could contribute to the persuasiveness of fear appeal messages and (2) messages that include images are preferred by most recipients. This experiment only partially confirmed these indications. Participants did evaluate the content of the brochure more positively after having read the brochure with a neutral photograph, compared to the brochure without a photograph, but this difference was not significant. Moreover, participants rated the source credibility of the brochure with the fear-arousing photograph significantly higher than the source credibility of the brochure without a photograph. However, there were no significant effects of version on the evaluation of the writing style.

Several aspects of the brochure (content, difficult and clear writing style, and capability of the source) were evaluated more positively by participants aged 16 to 19, compared to participants aged 12 to 15. While conducting the experiment among adolescents, older

participants seemed to have a higher level of proficiency in English than younger participants. For most of the participants, English was not their mother tongue. This may have caused the differences in evaluation of the brochure.

Finally, black participants evaluated the content of the brochure as significantly more relevant, rated the writing style as significantly more pleasant and significantly less boring, and found the source significantly cooler, compared to white participants. Thus, this brochure seemed to appeal more to black participants. This could be due to the writing style of the brochure.

6.3 Recommendations

This research aimed to increase the knowledge of the role that photographs can play in the perception of fear appeal messages in South Africa. The aim of this research was rather general. Future research could analyse the influence of photographs on fear appeal messages more specifically (e.g., by using more photographs).

Results showed that photographs can influence participants' perceptions regarding perceived threat, evaluation of the content and evaluation of the source credibility. Unfortunately, internal consistency for the efficacy variables and the evaluation of the writing style were insufficient in this research. Therefore, the questions regarding these variables had to be analysed separately and it was difficult to give general conclusions regarding these variables. In future research such variables should be pretested in order to improve the internal consistency.

Results regarding the relations between the different variables of fear appeal messages (fear/ content evaluation, perceived threat and perceived efficacy) were not entirely consistent and did not completely confirm the predictions of the EPPM. Especially, the relations regarding delaying of sexual debut were not consistent with the EPPM's predictions for fear and danger control responses. It is not clear why this efficacy aspect showed other results than the other three efficacy aspects, but it could be due to the past sexual experiences of the respondents. Therefore, it would be interesting to include questions regarding past sexual experiences in future research and repeat these analyses. The results regarding danger control processes appeared to favour the additive model over the EPPM. In future research, more extensive comparisons between the additive model and the EPPM could be made. Furthermore, the relationship of fear, perceived threat and perceived efficacy could be investigated further in future research, since Witte's EPPM does not fully explain the role of fear in fear appeal messages.

Literature

Aggleton, P. & Campbell, C. (2000). Working with young people – towards an agenda for sexual health. *Sexual and Relationship Therapy*, 15(3): 283-296.

Austin, E.W. (1995). Reaching young audiences: developmental considerations in designing health messages. In: Maibach, E. & Parrot, R.L. (Eds.) *Designing health messages: approaches from communication theory and public health practice.* Thousand Oaks: Sage, 114-144.

Baarda, D.B. & de Goede, M.P.M. (1990). *Basisboek methoden en technieken. Praktische handleiding voor het opzetten en uitvoeren van onderzoek.* Leiden/Antwerpen: Stenfert Kroese.

Barth, J. & Bengel, J. (2000). *Prevention through fear? The state of fear appeal research.* Cologne, Federal Centre for Health Education.

Barron, C. (2003). So many questions. *Sunday Times*, September 7, 2003, p. 21.

Brug, J., Schaalma, H., Kok, G., Meertens, R.M. & van der Molen, H.T. (2001). *Gezondheids-voorlichting en gedragsverandering.* Een planmatige aanpak. Assen: Van Gorcum

Coulson , N. (2003). *Developments in the use of the mass media at the national level for HIV/AIDS prevention in South Africa*. Retrieved from www.comminit.com/stcoulson/sld-5496.html on 21-06-2004

Crompton, A. (1979). *The craft of copywriting.* London: Business Books.

Damoiseaux, V., van der Molen, H.T. & Kok, G.J. (red.) (1998). *Gezondheidsvoorlichting en gedragsverandering.* Assen: Van Gorcum; Heerlen: Open Universiteit.

Eagly, A.H. & Chaiken, S. (1993). *The psychology of attitudes.* Fort Worth: Harcourt Brace Jovanovich.

EPIDASA: *Effectivity of Public Information Documents on AIDS in South Africa.* Retrieved from www.epidasa.org on 17-08-2003.

Hale, J.L. & Dillard, J.P. (1995). Fear appeals in health promotion campaigns. Too much, too little, or just right? In: Maibach, E. & Parrot, R.L. (Eds.) *Designing health messages: approaches from communication theory and public health practice.* Thousand Oaks: Sage, 65-80.

Hoeken, H. (1998). *Het ontwerp van overtuigende teksten. Wat onderzoek leert over de opzet van effectieve reclame en voorlichting.* Bussum: Coutinho.

Hovland, C., Janis, I.L. & Kelly, H. (1953). *Communication and persuasion.* New Haven, CT, Yale University Press.

Human Sciences Research Council (HSRC) (2002). *Household Survey 2002. Human Sciences Research Council Publishers.* Retrieved from http://www.hsrcpublishers.co.za.hiv.html on 29-07-2003.

Janis, I.L. (1967). Effects of fear arousal on attitude change: Recent developments in theory and experimental research. In L. Berkowitz (Ed.), *Advances in experimental social psychology.* New York: Academic Press, 166-225.

Kelly, K. (2000). *Communicating for action. A contextual evaluation of youth responses to HIV/AIDS.* (Sentinel Site Monitoring and Evaluation Project; Stage One report. Beyond Awareness Campaign). Pretoria: HIV/AIDS Directorate, Department of Health.

Kelly, K. & Parker, W. (2000). *Communities of practice. Contextual mediators of youth responses to HIV/AIDS.* (Sentinel Site Monitoring and Evaluation Project; Stage Two report. Beyond Awareness Campaign). Pretoria: HIV/AIDS Directorate, Department of Health.

Kelly, K., Parker, W. & Lewis, G. (2001). Reconceptualising behaviour change in the HIV/AIDS context. In: Stones, C. (Ed.) 2001. *Socio-political and psychological perspectives on South Africa.* Nova Science: London.

Kelly, K., Parker, W. & Oyosi, S. (2001). *Pathways to Action: HIV/AIDS Prevention, Children and Young People in South Africa. A literature review.* Centre for AIDS Development, Research and Evaluation, Save the Children. Retrieved from http://www.cadre.org.za on 20-08-2003.

Kinney, G.F. & Wiruth, A.D. (1976). *Practical risk analysis for safety management.* Naval Weapons Centre, California.

Leventhal, H. (1970). Findings and theory in the study of fear communications. In L. Berkowitz (Ed.), *Advances in experimental social psychology, 5*. New York: Academic Press, 119-186.

Leventhal, H. (1971). Fear appeals and persuasion: The differentiation of a motivational construct*. American Journal of Public Health*, 61: 1208-1224.

loveLife (2000). *Hot prospects, cold facts. Portrait of young South Africa.* Johannesburg: loveLife.

loveLife (2001a). *Impending catastrophe revisited. An update on the HIV/AIDS epidemic in South Africa.* Johannesburg: loveLife.

loveLife (2001b). *"loveLife's for us…" A survey of SA youth 2001.* Johannesburg: loveLife.

Maes, A., Ummelen, N. & Hoeken, H. (1996). *Instructieve teksten. Analyse, ontwerp en evaluatie.* Bussum: Coutinho.

Mendel, G. (2002). *HIV/AIDS in Africa.* M&G Books.

McGuire, W.J. (1968). Personality and susceptibility to social influence. In: Borgatta, E. & Lambert, W. (eds.) *Handbook of Personality Theory and Research.* Chicago, Rand McNally, 1130-1187.

McGuire, W.J. (1969). The nature of attitudes and attitude change. In: Lindzey, G. & Aronson, E. (eds.) *The Handbook of Social Psychology* (Vol. 3). Reading, MA: Addison-Wesley, 136-314.

Pettersson, R.C. (2002*). Informations Design. An introduction.* Amsterdam; Philadelphia: John Benjamins.

Perloff, R.M. (2001). *Persuading people to have safer sex. Applications of social science to the Aids crisis.* Mahwah, New Jersey: Lawrence Erlbaum.

Rhodes, F. & Wolitski, R.J. (1990). Perceived effectiveness of fear appeals in Aids education: relationship to ethnicity, gender, age and group membership. *Aids Education and Prevention,* 2(1): 1-11.

Rogers, R.W. (1975). A protection motivation theory of fear appeals and attitude change. *Journal of Psychology*, 91: 93-114.

Rogers, R.W. (1983). Cognitive and psysiological processes in fear appeals and attitude change: A revised theory of protection motivation. In: Cacioppo, J. & Petty, R. (eds.): *Social Psychophysiology.* New York: Guilford, 15-176.

Rosenstock, I.M., Strecher, V.J., Becker, M.H. (1994). The health belief model and HIV risk behaviour change. In: DiClemente, R.J. & Peterson, J.L. (eds.): *Preventing AIDS: Theories and methods of behavioral interventions.* New York: Plenum.

Sassen, B. (1999). *Gezondheidsvoorlichting en preventie.* Maarssen: Elsevier/De Tijdstroom.

Schellens, P.J., Klaassen, R. & de Vries, S. (2001). *Communicatiekundig ontwerpen: Methoden, perspectieven en toepassingen.* Assen: Van Gorcum.

Spooren, W., Smith, B. & Renkema, J. (2000). De invloed van stijl en type argumentatie op de overtuigingskracht van een direct mail. *Tijdschrift voor Taalbeheersing*, 22(4): 344-357.

Sutton, S.R. (1982). Fear-arousing communications: A critical examination of theory and research. In: Eiser, J.R. (ed.) *Social psychology and behavioural medicine.* London: Wiley, 303-337.

Swanepoel, P.H. (2003). Die (on)effektiwiteit van MIV/vigs-voorligtingsveldtogte en –voorligtingstekste in Suid-Afrika: normatiewe raamwerke, probleme en riglyne vir oplossings. *Tydskrif vir Nederlands & Afrikaans*, 1: 5-51.

Witte, K. (1992a). Putting the fear back into fear appeals: The Extended Parallel Process Model. *Communication Monographs*, 59: 329-349.

Witte, K. (1992b). Preventing Aids through persuasive communications. A framework for constructing effective, culturally specific health messages. *International and Intercultural Communication Annual*, 16: 67-86.

Witte, K. (1994). Generating effective risk messages: How scary should your risk communication be? *Communication Yearbook*, 18: 229-254.

Witte, K. (1998). Fear as motivator, fear as inhibitor: using the Extended Parallel Process Model to explain fear appeal successes and failures. In: Andersen, PA & Guerrero, LK. *Handbook of Communication and Emotion*. San Diego: Academic Press.

Witte, K. & Allen, M. (2000). A meta-analysis of fear appeals: implications for effective public health campaigns. *Health Education & Behavior*, 27(2): 275-289.

Witte, K., Cameron, K.A., McKeon, J.K., Berkowitz, J.M. (1996). Predicting risk behaviours: development and validation of a diagnostic scale. *Journal of Health Communication*, 1: 317-341.

Witte, K., Meyer, G. & Martell, D. (2001). *Effective health risk messages. A step-by-step guide.* Thousand Oaks: Sage.

Appendices

1. Checklist pretest

Thank you for helping with this research! In this checklist, you have to mark the picture that you think would make you more afraid of AIDS.

Example:

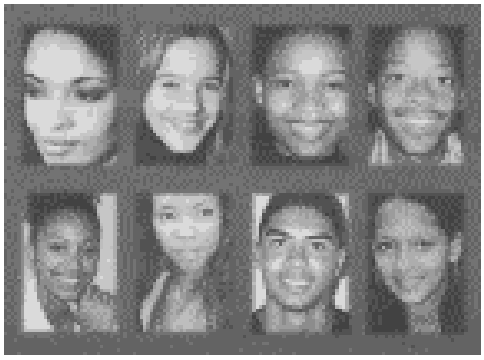
	A	B
Pair 1		✔

Which of the two pictures would make you more afraid of AIDS, picture A or picture B?

	A	B
Pair 1		
Pair 2		
Pair 3		
Pair 4		
Pair 5		
Pair 6		
Pair 7		
Pair 8		
Pair 9		
Pair 10		
Pair 11		
Pair 12		
Pair 13		
Pair 14		

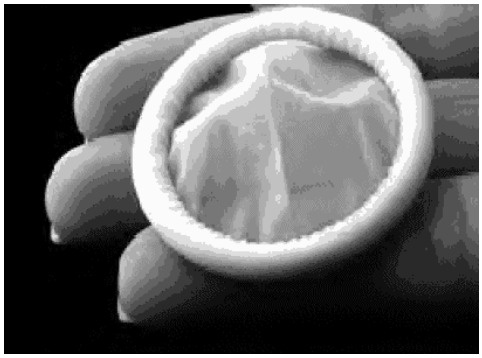
	A	B
Pair 15		
Pair 16		
Pair 17		
Pair 18		
Pair 19		
Pair 20		
Pair 21		
Pair 22		
Pair 23		
Pair 24		
Pair 25		
Pair 26		
Pair 27		
Pair 28		

2. Photographs pre-test



(a) Eight faces of young people

(e) Corpse in a body bag



(b) Condom

(f) Black boy with AIDS-related skin infection

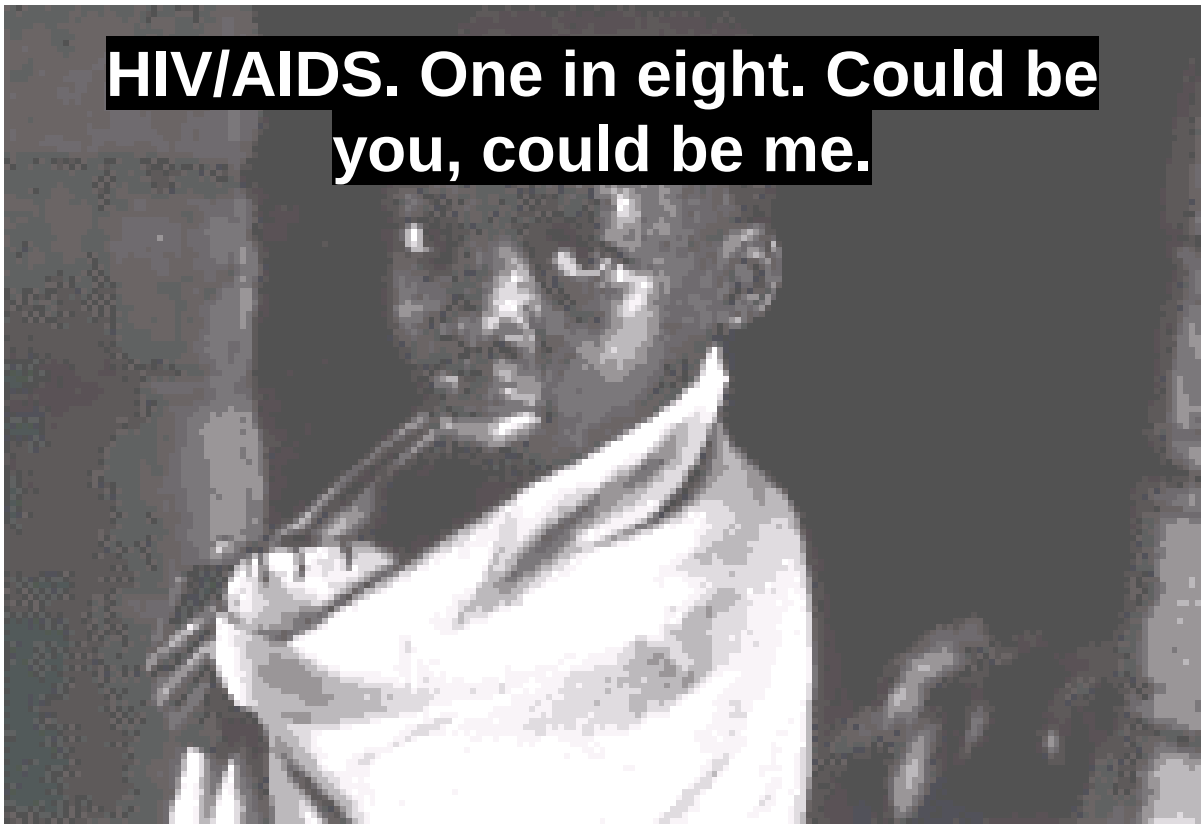
(c) White couple

(g) Dead girl in bed, surrounded by boys

(d) Black couple

(h) Dying black man in hospital with family

3. Brochure with fear arousing photograph

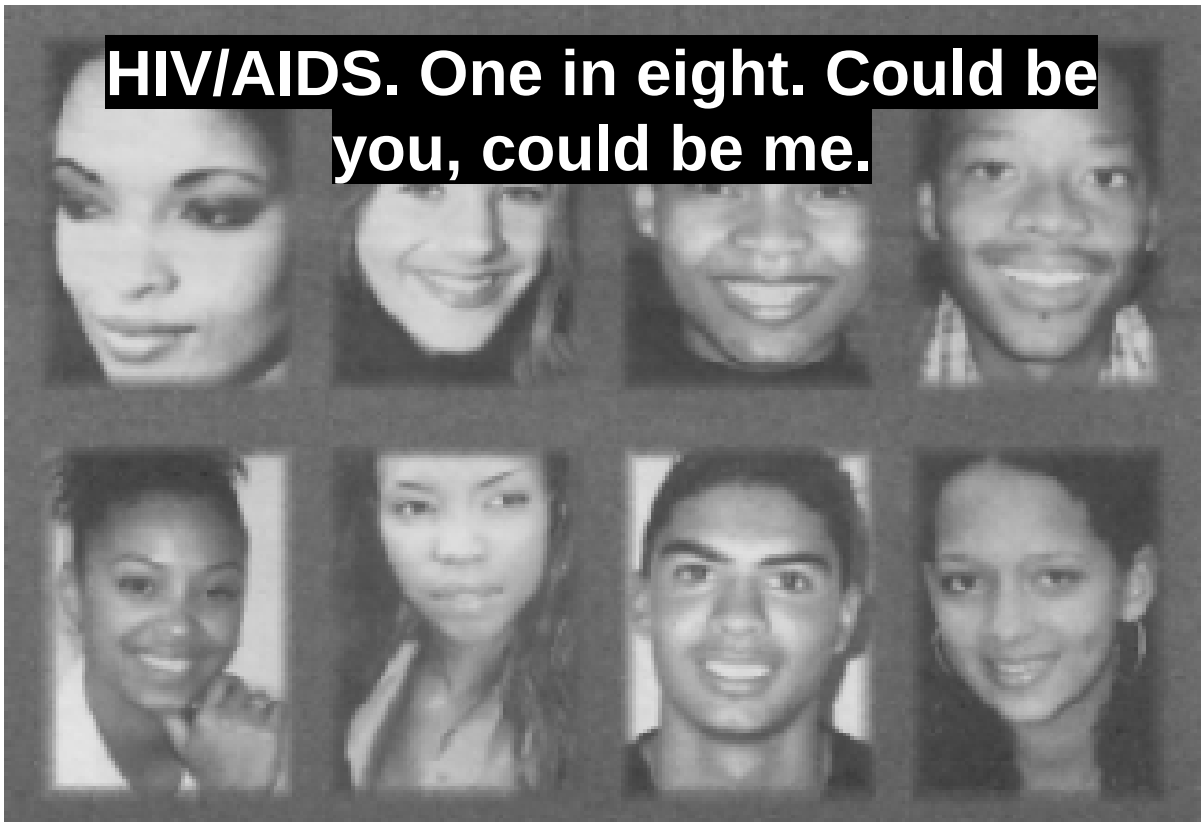


By now, we all know about HIV/AIDS, right? We all know that it's a STI mostly caused by unprotected sex. We know we can't see if someone has HIV/AIDS and we don't know if we have it unless we have a blood test. We know it's a very good reason not to rush into having sex and not to sleep around. We know it's also an excellent reason for practising safe sex.

But we just don't want to believe that it could happen to us. We don't want to think that our steamy loving with our hot date may be our death certificate. You shouldn't believe that just because you don't have it, it doesn't exist. HIV/AIDS is real, even though we can't see it. There is NO medicine that can make HIV/AIDS go away. Once the virus is in your body, nothing can heal it.

So, what can we do about it? Understand that there are bigger things in life that could be ruined by casual sex, and if you do decide to have sex, make sure it's with somebody you care about – and that you care enough to protect each other. The condom is the surest way to protect us from HIV/AIDS. They're easily available at clinics, chemists, supermarkets, Clicks, community organisations and some public toilets.

4. Brochure with neutral photograph



By now, we all know about HIV/AIDS, right? We all know that it's a STI mostly caused by unprotected sex. We know we can't see if someone has HIV/AIDS and we don't know if we have it unless we have a blood test. We know it's a very good reason not to rush into having sex and not to sleep around. We know it's also an excellent reason for practising safe sex.

But we just don't want to believe that it could happen to us. We don't want to think that our steamy loving with our hot date may be our death certificate. You shouldn't believe that just because you don't have it, it doesn't exist. HIV/AIDS is real, even though we can't see it. There is NO medicine that can make HIV/AIDS go away. Once the virus is in your body, nothing can heal it.

So, what can we do about it? Understand that there are bigger things in life that could be ruined by casual sex, and if you do decide to have sex, make sure it's with somebody you care about – and that you care enough to protect each other. The condom is the surest way to protect us from HIV/AIDS. They're easily available at clinics, chemists, supermarkets, Clicks, community organisations and some public toilets.

5. Brochure without photograph

HIV/AIDS.

One in eight. Could be you, could be me.

By now, we all know about HIV/AIDS, right? We all know that it's a STI mostly caused by unprotected sex. We know we can't see if someone has HIV/AIDS and we don't know if we have it unless we have a blood test. We know it's a very good reason not to rush into having sex and not to sleep around. We know it's also an excellent reason for practising safe sex.

But we just don't want to believe that it could happen to us. We don't want to think that our steamy loving with our hot date may be our death certificate. You shouldn't believe that just because you don't have it, it doesn't exist. HIV/AIDS is real, even though we can't see it. There is NO medicine that can make HIV/AIDS go away. Once the virus is in your body, nothing can heal it.

So, what can we do about it? Understand that there are bigger things in life that could be ruined by casual sex, and if you do decide to have sex, make sure it's with somebody you care about – and that you care enough to protect each other. The condom is the surest way to protect us from HIV/AIDS. They're easily available at clinics, chemists, supermarkets, Clicks, community organisations and some public toilets.

6. Questionnaire

Thank you for helping me with this research! All your answers will be treated confidentially; you do not have to give your name.

Section 1: questions about the AIDS brochure
The first questions are about the AIDS brochure attached. Please read the brochure before you answer the questions. Choose any of the seven circles to give your opinion, ranging from very positive to very negative.

Example:

I think chocolate cookies are:

Not good at all O O O O O O O Very good

If you think chocolate cookies are good, mark:

Not good at all O O O O O ⊗ O Very good

If you think chocolate cookies are average, mark:

Not good at all O O O ⊗ O O O Very good

If you think chocolate cookies are not good at all, mark:

Not good at all ⊗ O O O O O O Very good

1. Is there anything about this brochure that you like very much?…….....

…….....

…….....

…….....

…….....

2. Is there anything about this brochure that you dislike?…….....

…….....

…….....

…….....

…….....

3. When I read the text of the brochure I felt:

Not horrified at all O O O O O O O Very horrified

Very frightened O O O O O O O Not frightened at all

4. I think the length of the text is:

Too long	O	O	O	O	O	O	O	Too short

5. I think the brochure is:

Very convincing	O	O	O	O	O	O	O	Not convincing at all
Not informative at all	O	O	O	O	O	O	O	Very informative
Very exaggerated	O	O	O	O	O	O	O	Not exaggerated at all
Very relevant for me	O	O	O	O	O	O	O	Not relevant for me at all
Not motivating at all	O	O	O	O	O	O	O	Very motivating
Not interesting at all	O	O	O	O	O	O	O	Very interesting
Very confusing	O	O	O	O	O	O	O	Not confusing at all
Not believable at all	O	O	O	O	O	O	O	Very believable
Very realistic	O	O	O	O	O	O	O	Not realistic at all
Not useful at all	O	O	O	O	O	O	O	Very useful

6. I think the way the text was written is:

Very difficult	O	O	O	O	O	O	O	Not difficult at all
Not formal at all	O	O	O	O	O	O	O	Very formal
Very pleasant	O	O	O	O	O	O	O	Not pleasant at all
Not clear at all	O	O	O	O	O	O	O	Very clear
Not boring at all	O	O	O	O	O	O	O	Very boring

7. I think the writer of the text is:

Very reliable	O	O	O	O	O	O	O	Not reliable at all
Not honest at all	O	O	O	O	O	O	O	Very honest
Not capable at all	O	O	O	O	O	O	O	Very capable
Very friendly	O	O	O	O	O	O	O	Not friendly at all
Very cool	O	O	O	O	O	O	O	Not cool at all

8. I think condoms are:

Very effective in preventing AIDS	O	O	O	O	O	O	O	Not effective in preventing AIDS at all
Very pleasant to use	O	O	O	O	O	O	O	Not pleasant to use at all

9. I think talking about condom use with my boy/girlfriend is/will be:

Very easy	O	O	O	O	O	O	O	Not easy at all

10. I'm convinced that postponing sex till I'm older is:

A very good idea	O O O O O O O	Not a good idea at all
Very difficult	O O O O O O O	Not difficult at all

11. For me, not sleeping around is:

A very bad idea	O O O O O O O	Not a bad idea at all
Not difficult at all	O O O O O O O	Very difficult

12. I think AIDS is:

A very serious disease	O O O O O O O	Not a serious disease at all
Very harmful	O O O O O O O	Not harmful at all

13. I think my chances of getting AIDS are:

Very low	O O O O O O O	Very high

Section 2: General information

14. What is your age?…….years old

15. I am a

O boy

O girl

16. To which population group do you belong? (e.g. Zulu, Sotho, Afrikaanses)…….

…….

17. What is your first language?……..

18. Do you have any other comments on the brochure or the questionnaire?…….

…….

…….

…….

…….

Thank you very much for your help!