Investigating culturally-oriented fear appeals in public information documents on HIV/AIDS

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Abstract

Two public information texts including different fear appeals aimed at AIDS prevention were evaluated by participants from three countries: 147 participants came from the Netherlands, 109 from Spain and 179 from South Africa (varying ethnical backgrounds). The results of the experiment suggest that HIV/AIDS communication that emphasizes the severity of the disease and the vulnerability of the target audience can be successful, provided that the members of the target audience feel confident enough about their own capabilities to adopt self-protective behavior. As for possible interaction effects of fear appeals and cultural orientation, the outcomes of a similar experiment reported in Murray-Johnson et al. (2001) could not be replicated. None of the predicted effects occurred. An explanation may partly be found in problems concerning frequently used measurement instruments for cultural orientation.

Keywords: HIV/AIDS communication, Netherlands, Spain, South Africa, self confidence, self-protective behaviour.

Introduction

Amazing as it may seem in view of the impact of the AIDS pandemic in large, culturally-differing parts of the world, only a few reports are available on studies into the effects of HIV/AIDS texts in which attention is paid to cultural variation in the target groups (cf. Swanepoel 2003). An exception is Murray-Johnson, Witte, Liu, Hubbell, Sampson & Morrison (2001). In two experiments Murray-Johnson et al. (2001) investigated the effects of texts aimed at AIDS prevention. The texts were read by participants from target groups with varying cultural backgrounds: Mexican Immigrants versus African American Adolescents, and American versus Taiwanese College Students. The most important characteristic of the texts that were studied was the inclusion of different versions of a fear appeal message: varying attempts were made to arouse enough fear to promote precautionary motivation and self-protective action.

According to the influential *Extended Parallel Process Model* introduced by Witte (see, for example, Witte 1998; Witte & Allen 2000), a fear appeal message may lead the receivers to display the recommended behavior, but only so if the threat presented in the message is perceived as *severe* enough and if the receivers perceive themselves as *susceptible* to the threat. If these conditions are met (and the receiver hence will experience enough *fear*), and if the receiver is presented with a measure that can be taken, there are two possibilities: *danger control* and *fear control*. If the perceived *response efficacy* (effectiveness of the proposed measure) and the perceived *self-efficacy* of the receiver are great enough, the frightened receiver will start making attempts to avert the danger (*danger control mode*), which is exactly the behavior that the sender of the fear appeal message is promoting. However, if the perceived self-efficacy and the perceived response efficacy are inadequate, the frightened receiver will attempt to subdue the feelings of fear without fighting the danger (*fear control mode*). In this case, receivers will start defending themselves against the feelings of fear that have been aroused, and they will be making an effort to shield themselves from the communication that brought about these feelings of fear (*defensive avoidance*).

Murray-Johnson et al. wanted to investigate if the same fear appeal messages that are successful in one culture, would also be successful in another culture. More specifically, they wanted to find out if an HIV/AIDS prevention text that is based on a fear appeal, should or should not be adapted to the cultural context of the readers. This is an important issue, not only from a theoretical point of view but even more perhaps because of the practical implications for HIV/AIDS prevention campaigns in various parts of the

world. If it would turn out that the characteristics that make a fear appeal HIV/AIDS message effective would be the same everywhere, regardless of the cultural background of the receivers, then that would make the task of writing and designing such a text relatively uncomplicated. If, however, the research would show a clear relation between the effects of fear appeal texts on HIV/AIDS on the one hand, and the cultural background of the readers on the other hand, that would imply that such texts would have to be carefully adapted to the cultural context in which they are going to be used.

Murray-Johnson et al. (1998) claim to have found initial evidence that it is important indeed to take cultural orientation into account when developing effective fear appeals. (354) The validity of this conclusion, however, is questionable. In the experiments presented in Murray-Johnson et al. (1998), a number of methodological problems occurred that were not convincingly solved. In this article[1] some attention to these methodological issues has to be paid, to explain why a replication study was deemed necessary. This replication study was done in three countries: the Netherlands, Spain and South Africa, and involved 435 subjects. The experiments discussed in Murray-Johnson et al. (1998) were undertaken in the USA (first experiment) and in the USA and Taiwan (second experiment) and involved 238 subjects (47 in the first experiment and 191 in the second experiment).

Before presenting our replication study, the original experiments by Murray-Johnson et al. (2001) will be discussed in some detail. This is necessary to explain why a replication study of specifically their second experiment was relevant, and to allow a comparison of the results of our replication study with the findings reported by Murray-Johnson et al. (2001).

Experiments carried out by Murray-Johnson et al. (2001)

In both studies discussed in Murray-Johnson et al. (2001) a 2 x 2 experimental design was employed with target of threat (self versus family) and cultural orientation (individualist versus collectivist) acting as the factors. The target of threat was manipulated in a fear appeal message that was part of a larger text on HIV/AIDS. The first paragraphs of this text emphasized how one can be infected by the HIV virus and what can be done to avoid contracting it. In the following two paragraphs a story was told of a girl suffering from AIDS. In the text versions where the threat was to the individual, the emphasis was placed on the harmful consequences for the girl herself. In the text versions in which the threat was to the group, the focus was on the harmful consequences for the family of the girl who had been infected.

In the first experiment, different cultural orientations were brought into play by confronting two different groups of young American high school pupils (mean age: 13.5 years) with either the text in which the target of threat was the individual, or the text in which the target of threat was the group, more specifically the family. The first group of participants comprised 27 young African Americans; the second group consisted of 20 young Mexican immigrants. The American Africans were regarded as holding a more individualistic orientation and the Mexican immigrants were categorized as being more collectivistic. The results showed that African American youth were most frightened by the text that threatened the individual, while Mexican immigrant youth were most frightened by the text that threatened the family. Murray-Johnson et al. (2001) identify some serious limitations of this first experiment, the most important being that cultural orientation was ascribed to the participants, but not measured. Referring to Triandis, Bontempo, Villareal, Asai & Lucca (1988), Murray-Johnson et al. (2001) acknowledge that it is important to measure the individual correlate of collectivist and individualist orientation instead of "simply ascribing an orientation to participants based on their cultural heritage" (347). It may have been that some young Mexican immigrants in this study held typically individualist values, while some young African Americans, on the other hand, held typically collectivist values (for an elaborate discussion of this critical issue in cross cultural research, see also Hoeken & Korzilius 2003). That is why Murray-Johnson et al. (2001) decided to engage in a second study.

The second experiment was done in the USA and Taiwan. In the texts that were used, a story was told of a female student, suffering from AIDS with fatal consequences. The distinction between the various cultural orientation conditions was based on Hofstede's cross-national study (Hofstede 1984, 2001), in which the USA was categorized as a typically individualistic country and Taiwan as a typically collectivistic country. About half the number of participants (N=98) were students living in the USA and were expected to be, on average, more idiocentric (hold a more individualistic orientation) than the participants living in Taiwan (N=93) who were expected to be, on average, more allocentric (hold a more

collectivistic orientation). To test these expectations, the so-called INDCOL scale was used, which was developed to measure individual differences in individualism versus collectivism (Hui 1988).

The outcomes were quite unexpected: most Taiwanese participants were found to be idiocentric, while most American participants were found to be allocentric. This result leads Murray-Johnson et al. (2001) to argue for more advanced measures to assess idiocentrism and allocentrism. More specifically, they refer to a questionnaire for measuring horizontal and vertical individualism and collectivism, as introduced in Triandis, Chen and Chan (1998) (see below).

In their second experiment Murray-Johnson et al. (2001) found no statistically significant interaction effects between target of threat and cultural orientation on *attitude* and *intention*, but they did find a statistically significant interaction effect between target of threat and cultural orientation on the dependent variable *fear arousal* (while controlling for a number of covariates). High idiocentrics were most frightened by the text that threatened the individual, while high allocentrics were most frightened by the text that threatened the family. This interaction effect, reported in Murray-Johnson et al. (2001), however, is not reported in the original master's thesis[2] in which this experiment is described (Liu 1998).[3]

From the results of their experiments, Murray-Johnson et al. (2001) conclude that fear appeals that threaten the family cause greater effects for members of collectivist cultures and allocentric individuals than do fear appeals that focus on threats to the individual, and vice versa. Combining this conclusion with the suggestion from meta-analyses that greater fear leads to greater message acceptance (Boster & Mongeau, 1984), Murray-Johnson et al. (2001) state that "cultural orientation should be taken into account when developing effective fear appeals." (354)

A problematic aspect of both experiments discussed in Murray-Johnson et al. (2001) is the way cultural orientation was defined. In the first experiment cultural orientation was only ascribed, but not measured on an individual level, leaving the possibility open that individual participants would hold cultural values other than was to be expected on the basis of the culture they came from. The seriousness of such a risk was confirmed in the second experiment in which participants from a culture expected to be highly collectivistic, according to their INDCOL scores were rated as highly individualistic, while participants from a culture expected to be highly individualistic were rated as highly collectivistic.

In the discussion of the first experiment, Murray-Johnson et al. (2001) regret that, because of the limited number of questions in that experiment, "a true test of grounded fear appeal research" had not been possible (347). The second experiment, however, used a questionnaire which included questions that corresponded with all variables from the Extended Parallel Process Model (from here: EPPM). Unfortunately, there is no report of whether the statistical relations between these variables proved to exist as predicted in the EPPM.

In view of the importance of the efficacy of HIV/AIDS fear appeal messages in various cultural contexts, it was decided that a replication study would be undertaken. This study aimed at:

- testing again if cultural orientation and target of threat have an interaction effect on variables such as fear arousal, attitude and intention;
- testing the relations between fear appeal variables as predicted in the EPPM.

New study

Just as in the two experiments by Murray-Johnson et al. (2001), a 2 x 2 experimental design was employed, with target of threat and cultural orientation acting as the factors.

Participants

The participants consisted of 435 university students of varying ages (17 or 18 years: N=75; 19 or 20 years: N=135: between 21 and 24 years N=176; between 25 and 30: N=48; 31 or over: N=1). A total of 163 men and 271 women participated (one missing value). Students from three countries participated: 147 participants were living in the Netherlands, 109 in Spain and 179 in South Africa. According to Hofstede (1984, 2001), the Netherlands ranks 4/5 on individualism-collectivism, Spain is categorised as

being a more collectivistic country (position 20 on this index)[4] and South Africa ranks 16 in the individualism-collectivism list of 53 countries.

However, in view of the economic and political situation of South Africa during the period of Hofstede's data collection - apartheid strongly dominated the structure of the South African society in the early seventies - there is reason to believe that white South Africans were heavily over-represented in Hofstede's sample, while other ethnic groups, such as black and colored South Africans, were heavily underrepresented (cf. Jansen 1999). This would explain the similarities between Hofstede's outcomes concerning South Africa and countries such as Great Britain, Australia and New Zealand on the one hand, and the differences between the scores for South Africa and other countries in Africa on the other hand.[5] If the reasoning holds that Hofstede's characterisation of South Africa as a country may have applied (and would still apply) mainly to the white ethnic group in this country, then an equally defendable position might be that Hofstede's characterisation of countries in sub-Saharan Africa as predominantly collectivistic may also have applied (and still would apply) to black South Africans.

In view of the differences in cultural values dominating in the various ethnic groups living in South Africa today that might be relevant in health communication (see, for example, Van Niekerk 1992; 1997; Van Dyk 2000), the participants in this country were asked to specify their ethnic background. In South Africa, it is usual to distinguish four ethnic groups: black South Africans (sometimes referred to as African South Africans), white South Africans (an English-speaking and an Afrikaans-speaking group), Asian South Africans (predominantly of Indian origin), and colored South Africans. This last-mentioned mixed-race group is, culturally speaking, much closer to white South-Africans, especially Afrikaans speakers, whose language and religious beliefs they share, than it is to black South Africans. Sixty participants from South Africa indicated that they were white, 51 that they were colored and 65 that they were black; three participants did not answer this question.

Materials

The same texts were used as in the second experiment by Murray-Johnson et al. (2001). The following extract is from the text in which the target of threat was the individual.

> About twelve months ago, the youngest daughter of the Hamptons, Jenny, a 21-year-old college student, died of a combination of pneumonia, kidney and heart failure. Nobody dared to be close to her. Her boyfriend, Rick, called her at first, then disappeared. [..] Jenny's family was ashamed of her, too. They did not want to talk about her or her health problems. [...] In class, her classmates avoided her and nobody would sit next to her. [...] She felt so lonely when people stopped visiting her. During her last two weeks of life, nobody visited her. She died lonely and scared, because she did not use a condom when she had sex. (From: Liu 1998, Appendix A).

Below is an extract from the text which the target of threat was the family.

> About twelve months ago, the youngest daughter of the Hamptons, Jenny, a 21-year-old college student, died of a combination of pneumonia, kidney and heart failure. Jenny experienced a lot of physical pain, but it was nothing compared to the psychological and emotional torture her family and friends had to endure [..] Her boyfriend Rick suffered from the gossip about his "AIDS girlfriend". He was humiliated and ridiculed. [...] Jenny's family suffered the most. They were shunned by their co-workers and friends. [...] The family's honor had been destroyed and they were ashamed to leave the house. [...] Jenny's family, boyfriend, and friends all suffered as much if not more than Jenny did. The pain Jenny's family experienced with her dying did not go away. People continue to ignore and be mean to them, just because Jenny did not use a condom when she had sex. (From: Liu 1998, Appendix A)

For the South African participants, who were all either native speakers of English or very proficient in English as a second language, the original English versions of the texts were used that had been found in appendix A in Liu (1998). For the Dutch participants, the texts were translated into Dutch (and back translated to make sure that the translations were correct). The same procedure was followed for the Spanish versions. In the Netherlands and Spain, students were asked to participate as part of a course they were taking at the Radboud University Nijmegen and the University of Sevilla respectively. The South African students were recruited on two different campuses (University of Stellenbosch and University of the Western Cape). Participation here was rewarded by means of a small amount of money (10 SA Rand). It took the participants about 50 minutes to complete the questionnaire.

Manipulation check

To assess whether or not the participants perceived the individual or the family in the text they had read to be the ones threatened by AIDS, the same questions were asked as in the manipulation check part in the questionnaire used by Murray-Johnson et al. (2001:350; no internal consistency figures reported). A third question used in the questionnaire included in Liu (1998) which also intended to serve as a manipulation check, was copied into the questionnaire in the replication study. Internal consistency of the three questions in our questionnaire proved to be unsatisfactory (Cronbach's alpha=.38). Leaving one of the questions out did not result in an improvement in Cronbach's alpha. Hence, it was decided to treat each of the three manipulation check questions separately.

Measures

The questionnaire that was used included all the questions asked in Liu (1998). It was presented in English in South Africa, in Dutch in the Netherlands and in Spanish in Spain. The Dutch and Spanish versions were developed according to the same translation and back translation procedure used for the texts. All the questions that had been asked in the USA and Taiwan (included in the English version in Appendix B in Liu 1998) were also asked in this replication study. The question numbering and format (seven-point Likert type) were the same as in Liu (1998). For the group of participants as a whole, internal consistency was found to be acceptable (Cronbach's alphas from .62 to .83) for all variables that were measured using questions that were copied from the questionnaire used in Liu (1998).

Two new sets of questions were added. Following the suggestion in Murray-Johnson et al. (2001), that in future studies more advanced measures should be used for assessing idiocentrism and allocentrism, 48 questions were included that were developed to measure so-called vertical and horizontal dimensions of individualism/idiocentrism and collectivism/allocentrism. To explain these dimensions, Triandis, Chen and Chan (1998:276) characterize typical representatives as follows. Horizontal individualists (to be found, for example, in Sweden and Australia) see themselves as autonomous but do not necessarily compare themselves with others. Vertical individualists (coming, for example, from the middle and upper classes in the USA) also see themselves as autonomous, but are especially concerned with comparisons with others and they regard competition as important. Horizontal collectivists (to be found, for example, in the Israeli kibbutz) merge with in-groups (family, tribe, co-workers, nation), but do not feel subordinate to this in-group. Vertical collectivists (living, for example, in Indian villages) submit to the norms of their in-groups and are even willing to self-sacrifice for their in-group.

From the questions in our questionnaire that were intended to measure horizontal and vertical individualism and collectivism (from here: HI, VI, HC and VC), the first set (16 scenario questions) was presented in Triandis, Chen & Chan (1998), and the second set (32 Likert type questions) in Singelis, Triandis, Bhawuk & Gelfand (1995). Just like the other questions in the questionnaire, the questions concerning horizontal and vertical individualism and collectivism were translated for the Dutch and the Spanish participants, and back translated to make sure that the various language versions would be equivalent.[6]

Results

Cultural orientation

First internal consistency of the set of 16 scenario questions from Triandis, Chen and Chan (1998) was determined. Just as was done in Triandis, Chen and Chan (1998:285), odd- and even-numbered question

comparisons were carried out. For the complete group of participants, the Spearman correlation between the ranking of the HI, VI, HC and VC scores of the even-numbered questions and the ranking of the HI, VI, HC and VC scores on the odd-numbered questions was .00. The application of the same analysis to the Dutch, Spanish and South African subgroups led to Spearman rank correlations of .80, -.80 and .60 respectively. Clearly, these correlations scores do not support sufficient reliability of the measurement instrument involved.[7, 8]

To determine the internal consistency of each of the four cultural dimensions as defined by Singelis et al. (1995), Cronbach's alphas for all four subsets of their 32-items questionnaire were calculated, resulting in the following outcomes: HI: alpha=.54, VI: alpha=.70, HC: alpha=.67, and VC: alpha=.59. Possibilities were investigated to improve the alphas by leaving out various items from the subsets. This only resulted in a slight possible improvement for the HC questions: alpha=.68. In view of the unsatisfactory alphas for HI and VC, it was decided not only to omit the answers to the scenario questions from Triandis, Chen and Chan (1998) in further statistical analyses, but to do the same with the participants' scores on the four cultural dimensions as defined by Singelis et al. (1995). Only the INDCOL scores (minimum value 1 indicating the most individualistic orientation possible; maximum value 7 indicating the most collectivistic orientation possible) were considered to be reliable enough to serve as a measure of cultural orientation (alpha=.79). Table 1 shows the INDCOL scores for the Dutch, Spanish and South African participants.

Table 1 Cultural orientation (defined as score on the INDCOL index) by country of origin

Participants	*INDCOL score* *(the higher the more collectivistic)*
Dutch	M=4.48, SD=.38
Spanish	M=4.52, SD=.39
South African	M=3.58, SD=.50

A univariate analysis of variance revealed a significant effect of nationality on INDCOL scores: $F(2, 433)=44.47$; $p<.001$; $\eta^2=.52$. In post-hoc tests (Bonferroni; $p<.05$), the differences between the mean scores for the Dutch and the South Africans and the differences between the mean scores for the Spanish and the South Africans proved to be statistically significant: both the Dutch and the Spanish turned out to be significantly more collectivistic than the South Africans, and no significant difference was found between the Dutch and the Spanish.These results are in clear contrast with expectations from the findings of Hofstede (1984, 2001), where the Netherlands rank 4/5, South Africa ranks 16, and Spain ranks 20 on the individualism-collectivism scale. Table 2 shows the INDCOL scores for the various ethnic groups in South Africa.

Table 2 Cultural orientations of South African participants (defined as score on the INDCOL index) by ethnic background

Participants	*INDCOL score* *(the higher the more collectivistic)*
White	M=3.52, SD=.47
Colored	M=3.55, SD=.45
Black	M=3.66, SD=.55

While it was expected that the white South Africans would be the most individualistic and the black South Africans the most collectivistic, with the coloured South Africans holding a position somewhere in the middle, univariate analysis of variance showed no effect of ethnic group in South Africa on INDCOL scores: F (2,175)=1.392; p=.25. The three South African groups have average scores that do not differ statistically.

Manipulation check

Manipulation checks for the targets of the threat messages (self versus family) were computed for each of the three questions involved. For the first two questions, those reported on in Murray-Johnson et al. (2001), the results indicated that the manipulation had not been effective: t (425)=-.088; p=.93, and t (424)=.218; p=.22, respectively. From the results of the third manipulation check question asked, however, it would seem that the manipulation was effective: t (428)=-9.470; p<0.001; η^2=.173. It has to be noted, however, that this question (copied exactly, like all the other questions from Liu 1998), did not ask if the girl in the story or *her family* had suffered most as a result of the girl getting AIDS. The opposition here was between the girl and *her friends*.[9] The wording of this question makes it difficult to conclude that the manipulation was a success, despite the statistically different scores for this item (M=2.86, SD=2.49 for those who read the threat to individual test; M=4.89, SD=1.91 for those who read the threat to the family text).

Effects of cultural orientation and target of threat

A multivariate analysis of variance was carried out, to investigate possible effects between target of threat (self or family) and cultural orientation. To be able to use cultural orientation as a fixed factor, this variable had to be dichotomised first. Just as was done in Liu (1998) the bottom half on the INDCOL scale (N=217) were considered as individualists and the top half (N=218) as collectivists. In this case, power was .81 to detect a small to medium effect size (f=.20) and >.99 to detect a medium effect size (f=.25) for all analyses of variance with alpha set at .05 (Cohen 1977:312). After that, for the same reasons that Murray-Johnson et al. (2001:353) refer to, a tertile split was employed separating high idiocentrics (the bottom third of the INDCOL scale, N= 146) from high allocentrics (the top third of this scale, N=145) and leaving out the middle third (N=145). In this case, power was .85 to detect a medium effect size (f=.25) for all analyses of variance with alpha set at .05 (Cohen 1977:312).

Both when the INDCOL scores were dichotomised and when a tertile split was carried out, the multivariate analysis of variance revealed significant interaction effects between target of threat (self or family) and cultural orientation: F(8,419)=2.51; p<.01; η^2=.05, and F(8,277)=3.11; p<.01; η^2=.08, respectively. When the INDCOL scores were dichotomised, three out of eight possible interaction effects investigated proved to be significant (dependent variables: *fear arousal, perceived response efficacy,* and *intention to adopt the promoted behavior*). When a tertile split was carried out on the INDCOL scores, four interaction effects were significant (dependent variables: f*ear arousal, perceived response efficacy, attitude* and *intention*).

A further analyzing the scores for these dependent variables showed that the highest scores for these dependent variables were never found when the threat in the text was targeted in the direction of the cultural orientation of the participants, as might be expected from the results reported in Murray-Johnson et al. (2001). For *fear arousal*, the highest scores were even found when the threat was targeted in the opposite direction of the cultural orientation of the participants. Whereas Murray-Johnson et al. (2001:353) report that high idiocentrics were most frightened by the text that threatened the individual and high allocentrics were most frightened by the text that threatened the family, in this replication study exactly the opposite was found; see Table 3.

Table 3 *Fear arousal* after reading both text versions, for allocentrics and idiocentrics

	allocentric: top half on INDCOL	idiocentric: bottom half on INDCOL		allocentric: top third on INDCOL	idiocentric: bottom third on INDCOL

Target of threat: family	M=3.88, SD=1.36	M=4.32, SD=1.37		M=3.98 SD=1.43	M=4.40, SD=1.44
Target of threat: individual	M=4.09, SD=1.52	M=3.85 SD=1.34		M=4.15 SD=1.61	M=3.83, SD=1.29

Fear appeal variables

The questionnaire made it possible to investigate whether the variables in the EPPM were related statistically as is predicted by this fear appeal theory. First, using linear regression analysis, it was determined to what extent perceived *severity* and perceived *susceptibility* contributed to *fear arousal*. Then a distinction was then made between those participants who indicated that they were really frightened (score for overall *fear arousal* ≥ 6 on a seven-point scale, N=39) and those whose answers did not indicate that they were really afraid (score for overall *fear arousal* <6, N=396). Consequently, two-tailed t-tests were used to it investigate if the high fear participants differed from the low fear participants as far as their intention to adopt the recommended response and their defensive avoidance of the fear arousing information were concerned. The expectation from the EPPM was that high fear participants would have higher scores on both these dependent variables than low fear participants would. Finally, it was determined whether the intention of the high fear participants to adopt the promoted behavior or their defensive avoidance depended on the scores for perceived *response efficacy* and perceived *self-efficacy*. For this purpose, linear regression analyses were again carried out. Here, based again on the EPPM, it was expected that high fear participants with a positive perception of their *self efficacy* and *response efficacy* would be more inclined to adopt the promoted behavior (*danger control mode*), while other high fear participants would be more inclined to defensive avoidance (*fear control mode*). The findings were as follows.

As expected, both perceived *severity* and perceived *susceptibility* contributed significantly ($p<.001$) and positively ($\beta=.19$ and $\beta=.42$, respectively) to *fear arousal*. Also as expected, the intention of the high fear participants to adopt the promoted behavior was significantly higher (M=6.11; SD=1.09) than that of the low fear participants (M=5.56; SD=1.49) ($t(432)=-2.28$; $p=.02$; $\eta^2=.01$). Contrary to expectations, however, the defensive avoidance of the high fear participants was significantly lower (M=1.33; SD=.74) than that of the low fear participants (M=1.97; SD=1.16) ($t(433)=3.35$; $p=.001$; $\eta^2=.02$).

Also contrary to expectations, in the high fear participants perceived *response efficacy* did not contribute significantly either to the intention to adopt the promoted behavior ($p=.33$), or to defensive avoidance ($p=.14$). As expected, however, in these participants, perceived *self-efficacy* proved to contribute significantly and positively to the intention to adopt the promoted behavior: ß=.50; $p=.001$; the contribution of perceived *self-efficacy* to defensive avoidance was negative, and nearly reached statistical significance: ß=-.30; $p=.06$.

Discussion

Fear appeal variables

Although not all expectations from the EPPM were confirmed, and although the number of high fear participants whose answers could be used to predict tendencies for *danger control* or *fear control* was relatively small, the outcomes suggest that fear appeals that meet the conditions specified in the EPPM may indeed have a beneficial effect on HIV/AIDS health behavior. HIV/AIDS communication that emphasizes the severity of the disease and the vulnerability of the target audience can be successful, provided that the members of the target audience feel confident about the usefulness of the measures that are recommended and about their own capabilities to adopt self-protective behavior.[10] However, for members of the target audience who lack the confidence to act as recommended, fear appeal messages may be counter-effective. The recievers may become so scared that they see no way out any more, and

decide to turn away from all messages about the threat and about possible ways to fight it. Finding effective ways to improve perceived *self-efficacy* for audiences from varying cultural backgrounds is an important challenge for researchers in the field of HIV/AIDS communication.

Cultural orientation and target of threat

The outcomes in Murray-Johnson et al. (2001) could not be replicated. None of the predicted interactions between target of threat and cultural orientation were found. This may be due not only to the unsatisfactory measures for cultural orientation (see below), but also to shortcomings in the texts that were used in the experiments. While the results from the manipulation checks in Murray-Johnson et al. (2001) indicated that the manipulations had been effective (344, 352) the results from the manipulation checks in our experiment were less univocal: the results of the manipulation in the replication study can be qualified as mixed, at the best.

A partial explanation why the results of the manipulation checks were not more positive can be found in problematic aspects of the texts that were used (see the *Materials* section). It is difficult to interpret one of the texts as clearly self-targeted and the other text as clearly family-targeted: in both text versions not only Jenny's suffering, but also the shame for her family is explicitly referred to. Another problem seems to lie in the lack of the realism in the family-targeted text version: even in a collectivistic environment it would seem strange to say that the deceased girl's suffering from physical pain "was nothing compared with the psychological and emotional torture her family and friends had to endure" and that the girl's family, boyfriend, and friends all suffered as much if not more than Jenny did".

Measuring cultural variables

Just as was the case in the second study by Murray-Johnson et al. (2001), where US participants reported higher scores on the INDCOL scores than did Taiwanese participants, the INDCOL scores found in our study were in sharp contrast to what was expected. The outcomes suggest that both the Dutch and the Spanish participants were more collectivistic than the South Africans; the white, black and colored South Africans all turned out to be equally individualistic. These unexpected scores raise doubts about the validity of the INDCOL-scale and underline the recommendation in Murray-Johnson et al. (2001) that more refined measures be used to determine cultural orientation on an individual level.

The reliability of the questionnaires in Triandis, Chen and Chan (1998) and in Singelis et al. (1995) to measure four dimensions of cultural orientation as distinguished by Triandis, Chen and Chan (1998) did not prove satisfactory either. To enable future fruitful cross-cultural and intercultural research, it seems necessary to spend much effort in the further development of reliable and valid measures for cultural orientation, and to put these new or improved instruments to the test in a great number of varying contexts. Possible alternatives to the scales discussed in this article can be found in, for instance, Schwartz (1992; 1994); Fiske, Kitayama, Markus & Nisbett (1998) and Realo & Allik (1999). Insightful discussions of the problems in measuring cultural variables at an individual level can be found in Peng, Nesbitt & Wong (1997), Hoeken & Korzilius (2003) and Hornikx (2006).

Final conclusion

To what extent should writers and designers of HIV/AIDS fear appeal texts take the cultural context of their readers into account? This important issue in HIV/AIDS prevention campaigns cannot be decided upon yet. The outcomes of our replication study raise serious doubts about the validity of the claim in Murray-Johnson et al. (2001) that "it is important to consider the focus of the threat in a fear appeal, along with the audience's cultural orientation, when developing effective public health messages" (356). Before such a claim can be made more studies are needed, preferably using instruments for assessing cultural differences that are more advanced and texts that are more carefully designed than those which have been used so far.[11]

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us reach the Spanish and South African participants. We thank prof. dr. Hans Hoeken and prof. dr. P. Swanepoel and the anonimous reviewers of this journal for critiquing draft versions of this text.

Notes

1. This study is part of a larger project that focuses on the effectiveness of public information documents on HIV/AIDS in South Africa. The project, which is partly funded by the South African-Dutch research organization SANPAD, is being carried out by a group of researchers and students from three South African universities (Pretoria, Stellenbosch and UNISA) and three Dutch universities (Nijmegen, Tilburg and Twente). For more information, see www.epidasa.org.
2. This thesis is not referred to in Murray-Johnson et al. (2001), but mrs. Wen-Ying Liu, author of the thesis and one of the authors of Murray-Johnson et al. (2001), was kind enough to send us a copy.
3. An explanation for the differing results reported in the two publications may be the following. In view of the problems occurring with the INDCOL scale Murray-Johnson et al. (2001:353) decided to use only the data from the high allocentrics (the top third on the INDCOL scale) and the high idiocentrics (the bottom third), and to leave out the middle group. In Liu (1998), high allocentrics were the top half of the INDCOL scale, and high idiocentrics were the bottom half.
4. Gouveia, Clemente and Espinosa (2003) suggest that the Spanish "are half way between collectivism and individualism [..], that is, between Latin America and Europe." (59)
5. Positions of South-Africa, Great Britain, Australia, New Zealand, West Africa and East Africa on four of Hofstede's dimensions (no scores are provided for South Africa on short-term versus long-term orientation, the fifth Hofstede dimension):

	South Africa	Great Britain	Australia	New Zealand	West Africa	East Africa
masculinity femininity	13/14	9/10	16	17	30/31	39
uncertainty avoidance	39/40	47/48	37	39/40	34	36
power distance	35/36	42/44	41	50	10/11	21/22/23
individualism collectivism	16	3	2	6	39/40/41	33/34/35

West Africa: Ghana, Nigeria, Sierra Leone
East Africa: Ethiopia, Kenia, Tanzania, Zambia

6. In the case of the Spanish translation of the 32 items from Singelis et al. (1995), it proved to be useful that we had a copy available of the Spanish written questionnaire that was kindly sent to us by one of the authors of Gouveia, Clemente andEspinosa (2003).
7. The large differences between the rank correlations found for the three countries, with even a negative correlation for the Spanish, remind of the differences that Triandis, Chen and Chan (1998) report when determining the rank order correlations for participants from Illinois (r=.80) versus participants from Hong Kong (r=-.20).
8. Applying another, more advanced, procedure to determine the internal consistency of the set of 16 scenario questions for all participants in our study did not change the picture. KR20 values (the equivalents of Cronbach's alphas for dichotomous questions) were calculated for all four dimensions, resulting in the following, equally unsatisfactory scores: HI: KR20=.28, VI: KR20=.23, HC: KR20=.13, VC: KR20=.12.
9. Possibly, this is the reason why this question is not mentioned in relation to the manipulation check in Murray-Johnson et al. (2001:350).
10. For support for this suggestion, see Witte (1998) and Witte & Allen (2000). See also Ruiter, Abraham & Kok (2001) however, for a critical review of the fear appeal literature, from which they conclude that "the contribution of fear appeals to the adoption of self-protective behavior is in doubt" (p.626).

11. In the field of information and document design there is a wealth of literature available for this purpose. See, for instance, the overviews in Schriver (1997) and in Jansen & Maes (1999).

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