

Threatening communication: a qualitative study of fear appeal effectiveness beliefs among intervention developers, policy makers, politicians, scientists and advertising professionals

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Abstract:

Threatening communication is a widely applied method in behavior change interventions, which at the same time has been heavily criticized in the psychological literature. The current paper describes a study into the reasons for this persistent wide application of threatening communication. We conducted qualitative interviews with 33 key actors in behavior change intervention development in the Netherlands. Specifically, we interviewed intervention developers, policy makers, politicians, scientists, advertising professionals. The interviews were transcribed and subsequently coded using NVivo. We found that participants most closely involved with the actual intervention development were generally convinced that threatening information was to be prevented, but often did not understand the exact processes involved. They were often under the impression that rather than a potent efficacy enhancing element, a behavioral suggestion would suffice to prevent threatening communication from backfiring. As participants were further removed from the actual intervention development, they generally tended to be more in favour in threatening communication. Main reasons for use of threatening information were to attract attention or prompt self-reflection through confrontation, because target population members were assumed to like threatening information and respond rationally to increased risk perceptions by changing their behavior, or simply because no alternatives were available. In addition, intervention developers frequently had to deal with supervisors or funders who preferred threatening communication. Thus, in conclusion, when communicating with practitioners, it seems fruitful to provide them with a toolbox of evidence-based behavior change methods that promote adaptive, rather than maladaptive, behavior; to promote basing interventions on the most relevant behavioral determinants as identified by determinant analyses; and to equip

intervention developers with the tools to persuade other key stakeholders that fear is a bad counselor.

Keywords:

Fear appeals, risk perception, behavior change, intervention development, intervention developers, policy makers, politicians, scientists, advertising professionals

Introduction

One of the paradoxes in health promotion is that one of the most popular methods for behavior change is also one of the least effective ones (Ruiter & Kok, 2005, 2006, both in Peters, Ruiter, & Kok, 2012)¹: the presentation of threatening information. Threatening information is widely used (Cohen, Shumate, & Gold, 2007), but effects on behavior are consistently absent or sometimes even negative (Albarracín et al., 2005; Earl & Albarracín, 2007). The current paper aims to provide insight into this paradoxical implementation of an ineffective behavior change method by reporting the findings of a qualitative study among those responsible for behavior change interventions: intervention developers, policymakers, politicians, scientists and advertisers.

In 2004, the European Union's ASPECT consortium published a report where they made a recommendation to make health warnings "mandatory on both sides of all tobacco products" (ASPECT Consortium, 2004, in Peters et al., 2012). Such health warnings are common, having been implemented in one form or another in over 50 states, often as texts or images designed to evoke fear. Fear-inducing communications are common in health promotion interventions all over the world. This is unfortunate, because both the theoretical and the empirical evidence suggest that threatening communication is at best an ineffective method for behavior change (Albarracín et al., 2005; Earl & Albarracín, 2007; Kessels, Ruiter, & Jansma, 2010; Peters et al., 2012; Witte, 1992; de Hoog, Stroebe, & de Wit, 2007).

Two theories on threatening communication currently prevail: the extended parallel process model (Witte, 1992) and the stage model of processing of fear-

¹ The indirect citations were necessitated by journal space restrictions.

arousing communications (de Hoog et al., 2007; for an excellent overview of the early theories on fear appeals, see Witte & Allen, 2000). Both postulate that behavior change is the function of a perceived threat, but only when there is sufficient perceived efficacy. A threat is a danger of harm, characterized by a degree of severity and a degree to which one is susceptible to this threat. Efficacy is one's ability to negate the harm, a function of the efficacy of a potential response in negating the harm (response efficacy) and one's capability to perform that response (self-efficacy). Both theories predict no behavior change when a threat is not severe, one is not susceptible to it, there exists no effective response, or when one is incapable to execute an effective response. However, despite this formal definition of fear appeals as including all four components, threatening interventions often do not target efficacy perceptions, at best recommending a behavior by mentioning it (which is a far cry from effective methods to influence self-efficacy; e.g. Bartholomew, Parcel, Kok, Gottlieb, & Fernández, 2011). Current theory therefore predicts such threatening interventions to be ineffective, instead inducing fear control responses, such as denial. These fear control responses can even yield the opposite behavior from what was intended (Peters et al., 2012). In this paper, threatening communications or 'fear appeals' denote the fear inducing interventions as they are used in practice, often neglecting efficacy beliefs and at best including a recommendation (Cohen et al., 2007).

This theoretical prediction (i.e., ineffectiveness of threatening communication) is supported by the empirical evidence. We recently completed a meta-analysis that clearly showed that threatening communication only has an effect on behavior when efficacy is high (Peters et al., 2012). Furthermore, several other meta-analyses showed threat-inducing interventions to be among the least effective methods for behavior

change (Albarracín et al., 2005; Earl & Albarracín, 2007). Also, recent social neuroscientific experiments show defensive responses to threatening health information (Kessels et al., 2010; see also Ruiter, Kessels, Smerecnik, Wouters, & Jansma, this issue). There exist two exceptions to these demonstrations of threatening communications' lack of effectiveness on measures of persuasion and behavior change. First, some studies did find positive effects of fear inducing messages on behavior (Borland et al., 2009; Hammond, Fong, McDonald, Brown, & Cameron, 2004, 2006). These studies, however, have been criticized for their methodological flaws (Peters et al., 2012). Second, other studies found positive effects on intention, but did not assess behavior (e.g. Fathelrahman et al., 2010). Intention, however, does not always predict behavior, a phenomenon known as the intention-behavior gap (intention typically predicts around one-third of behavior; Cooke & Sheeran, 2004; and medium-to-large changes in intention typically lead to only small-to-medium changes in behavior; Webb & Sheeran, 2006). This gap between intention and behavior means that although in general, intention predicts behaviour, there are exceptions to this rule where changes in intention are not translated into behaviour change (see e.g. Webb & Sheeran, 2006). Theory predicts that threatening communications that do not also enhance efficacy comprise such an exception, with changes in intention caused by threats not resulting in changed behaviour (Peters et al., 2012). For laymen, this information is confusing, and this confusion is aggravated by the finding that fear inducing messages can *lower* risk perceptions (Brown & Locker, 2009; Brown & Smith, 2007) and have a negative effect on behavior (Hansen, Winzeler, & Topolinski, 2010), even when they have a *positive* effect on intention (Ben-Ari, Florian, & Mikulincer, 2000).

For decades, behavior change scientists have communicated the ineffectiveness of threatening information to intervention developers (Leventhal, 1971; Ruiters, Abraham, & Kok, 2001; Witte & Allen, 2000). However, phenomena such as the EU's decision to recommend warning labels on cigarette packages and a recent CDC campaign that relies on threatening images (Stobbe, 2012) clearly evidence the failure of these communications.

The current paper reports the results of a study that was designed to examine why threatening communication remains so popular. In order to do so, we studied a population that is rarely studied: we identified key actors in intervention development in the Netherlands, whom we interviewed about their choices regarding intervention development. This approach can also provide insight into the process of intervention development, not as it should ideally take place, but as it takes place in practice. Besides shedding light on the inconsistency between the continuing popularity of threatening communication in practice and the theoretical and empirical evidence, this study can identify targets for an intervention aiming to enhance intervention development quality.

Method

We identified key actors by applying a snowball method starting with key actors in our own networks. Because the Netherlands is a relatively small country, this was a feasible method of reaching sufficient people. We conducted interviews with 33 key actors in Dutch health promotion intervention development. The interviews were conducted by two researchers who had not published any research on threatening communication (GJP and Kees de Jong) to minimize 'socially desirable answers' based on familiarity with an interviewer's work. Specifically, we interviewed 18 intervention developers and 2 administrators at health promoting service providers, 4

scientists, 3 policymakers, 3 politicians, and 3 advertising professionals. The intervention developers worked at health service providers (HSP) in the Netherlands. Five participants worked at regional HSPs (e.g. municipal health services), the remaining 14 at national HSPs, each addressing one or several behavioral themes such as smoking, safe sex, exercise, substance use, and diet patterns. We interviewed one administrator from a regional, and one from a national HSP. All four scientists worked at Dutch universities, specifically in the fields of medicine, business communication, epidemiology, and risk communication. Of the policymakers, one worked at a Dutch ministry; one at a national funding organization; one at a national HSP; and one at a regional HSP. Of the politicians, one was active in national politics as a Member of Parliament, and the other two in regional politics as municipal counselors. The advertising agency employees all worked at advertising agencies that had developed health promotion campaigns for national HSPs.

The interview protocol started with gathering information on the background of each participant. After that, questions addressed participants' experience with intervention development in general; what information participants gathered before making decisions about interventions; how certain choices were made, and what were particularly good or bad interventions in participants' opinion. Specifically, the interviews focused on interventions with behavior change as a goal in general (no specific interventions participants had developed). During these conversations, when threatening communication would come up, this issue would be probed more in depth. To ensure that threatening communication would be discussed in all interviews, a number of examples of interventions were included for the interviewee to judge, two of which used threatening communication (a picture of blackened lungs on a pack of cigarettes and a speeding intervention; see <http://fearappeals.com> for these pictures).

We chose this approach to let threatening communication come up in the interview naturally, which decreased the possibility of defensive reactions. We anticipated defensive reactions when intervention designers would be confronted directly with the question why they use threatening communication.

The interviews were recorded, transcribed, and imported into QSR NVivo, where they were coded by GJP. The coding consisted of two phases. First, all interview fragments where threatening communication was discussed were coded in the same 'fear appeal' category. Then, these fragments were reread and coded with more specific categories (see results section).

Results

The second coding sweep yielded a number of systematically occurring beliefs, which were categorized in a tree structure in the following categories: reasons for fear appeal use; reasons against fear appeal use; the process of intervention development; related beliefs (not otherwise categorized); and environmental constraints. Within some categories, subcategories were formed, such as within the "process of intervention development" category, the subcategories "goals of intervention development" and "target group involvement". The beliefs identified in these categories and subcategories were then organized in a narrative in four sections, each describing largely coherent sets of beliefs.

In these sections, some examples will be provided to illustrate the findings. These examples have been translated from Dutch. Interviewer comments are shown in bold. Note that the participants were selected because they had experience with behavior change interventions. All participants knew a lot of how to develop effective interventions. In this paper, however, we focus on beliefs that were inconsistent with the scientific state of the art. That narrow focus may cause these results to paint a

bleak picture: but this does not mean that the interviewed participants were ignorant or incompetent when it comes to intervention development. The interviewers were often impressed with participants' expertise and resourcefulness. Yet, there is always room for improvement, and this paper aims to facilitate such improvement.

Confrontation and emotion through fear

Inducing fear was cited relatively rarely as a reason to use threatening communication. More often, the goal was to confront people with the negative consequences of a given risky behavior. The most common argument for this need for confrontation was rooted in the fact that attention is a first necessary condition for further processing, and attention is a limited resource. Given that target population members are exposed simultaneously to multiple stimuli, behavior change interventions need to compete for attention. Evoking strong emotions was assumed to be a viable means to win this competition. The need to 'break through' and draw attention was often reported:

Of course, we don't have as much media budget as a commercial organization. So we will have to do something to draw attention. And that is what we want with our interventions or our campaigns. You want to draw attention, you don't want to shock, I don't think that's the right word, but you do want to do something that reaches people. So you want to hit a certain emotion, and I think that we managed with our campaign. Because many people saw it.

(Intervention developer, 191110)

Emotion was also assumed to render interventions memorable, which, combined with the memory of the evoked emotion itself, was assumed to prompt desirable behavior:

And why do you have to strike an emotion?

Yes, again, people get to see so many communications at a day, that if you want to strike somebody at all, then especially that emotion is important. Because only by letting people really feel something, you can prompt people to act. So at the moment you, for example, strike someone, in the sense of, we have a collection campaign, and you manage to strike

someone, then such a person will be willing to donate money in the collection box. Or maybe even extra this year. Because then he thinks “oh, yes, I saw that commercial, that struck me personally.” Then that works.
(Intervention developer, 191110)

A second example of this reasoning was provided by a participant from the advertising world:

(discussing the first prompting intervention, see <http://fearappeals.com>) What do you think? Is this a good intervention, or not? Do you think this would work, or not?

I think that in this case, you want to address a specific target group, and for that, I think it's good. I think that in that case you don't have to bother with a boring communication . . . Indeed, I think that if you want to address a certain target group, with a lot of sexual contacts, it's fine. "Before you know it, you have it, so be wise. You can also get safe sex everywhere." Period. Harsh, but clear.

And is this . . . Of course, you have behavior change and awareness. What do you think of it in those respects?

Well, I definitely think that they intend to change behavior. Otherwise you don't have to do a campaign like this . . . Becoming aware of easily contracting an STI and continuing your old behavior doesn't seem useful. So indeed, I think indeed the intention is to change behavior.

(Advertising professional, 51183)

Another common belief was that when a communication manages to evoke emotions in target population members, this would cause reflection about the relevant behavior:

For example, I spoke to a doctor, a doctor for young people from the municipal health centre, and he had a parent meeting at school, in group 7/8 [*ages 10-12*], and there they showed a brain scan with pictures. So one picture of a child who had not consumed alcohol, and another scan of a child who had consumed alcohol. And showed what it does to your brains. Well, they showed that at the meeting, and then people could ask questions. And then I thought, I think that works, because people then start thinking.

(Politician, 191115)

This belief was based on the assumption that target population members act and reason rationally (i.e. consistent with a Subjective Expected Utility model, see e.g. Tversky & Kahneman, 1981). A related and possibly derived belief was participants'

presumption that their own common sense reasoning about how communications would be received and processed further would resemble reality. For example, one scientist explained:

I would, if I would read, like, “it gives you lung cancer”, then I would stop to think, like, “well, I don’t think this is such a nice idea.”
(Scientist, 4119)

Also related, achieving awareness (or increasing risk perception to a certain threshold) was often considered a sufficient condition for behavior change:

You try to increase this motivation to quit. So the more you make them aware of the fact that it’s bad. The stronger your motivation becomes with respect to your addiction.
(Advertising professional, 22114)

To participants who assumed that target population members who perform the undesirable behavior are ignorant as to the negative consequences, showing these negative consequences was considered necessary education. Similarly, target population members were generally assumed to underestimate the negative consequences of the behavior. Thus, participants assumed that generally even target population members, who are aware of a causal link between a behavior and a negative consequence, would underestimate the severity of these negative consequences .

Partial knowledge of the theory

Intervention developers had often heard negative messages about threatening communication, but did not usually understand the dynamics at play. In general, it could be said that interviewees seemed to have some pieces of the puzzle, but lacked a coherent framework of the working mechanisms of threatening communication. This

sometimes manifested as ambivalence regarding the effectiveness of threatening communication:

Yes, but risk communication does not work with this population?

Yes, I think that this [pictures on cigarette packs] is a good method, but I also think that there's no other way than this [to change behavior].

(Scientist, 4119)

When logical arguments against the use of threatening communication were acknowledged, this ineffectiveness was sometimes attributed to specific characteristics of the situation at hand, often the nature of the behavior at hand (e.g. smoking is a difficult behavior). It was not uncommon for participants to express beliefs that in terms of the EPPM were logically inconsistent. For example, participants could state that they thought that low susceptibility, rather than low severity, was the main cause of unhealthy behavior; and several minutes later explain the importance of emphasizing the grave consequences of unhealthy behavior. One participant explained that they tried to solve the problem of low susceptibility in their target population by tailoring an intervention, enabling them to communicate that target population members belonged to a subpopulation that was at a relatively high risk. While this reasoning is partly in line with EPPM, self-efficacy was still not addressed. General efficacy levels in the population were also overestimated. For example, one participant remarked:

Yes, this [picture of blackened lungs] is ok, because you can do something about it by quitting smoking, so, um, I mean, if you would say, "breathing causes lung cancer", [that would be a different story].

(Advertising professional, 22114)

Related to this, participants sometimes were aware of the theoretical constraint that threatening information would not work unless efficacy was high, but then often underestimated the required intensity of an intervention to enhance efficacy. For

example, simply mentioning the recommended behavior was often considered sufficient. In fact, this was sometimes reported as a necessary ingredient of interventions using threatening communication.

Scientists were often cognizant of the EPPM, but like other participants, did not always realize that the threatening stimulus in this model can be any stimulus. Some classes of intervention types were considered to not be fear inducing (i.e. carry the risk of fear control responses), such as scenario messages or personalized risk assessments. Similarly, often participants indicated that they did not use threatening communication, while from their explanation, it became clear that they did:

[discussing a campaign against smoking that would focus on cancer]
Some people may call this a fear inducing message [...]. I don't call this fear inducing, because question one is, "what is fear exactly and what is fear inducing?" I consider it more of an awareness campaign. Because people often say, "well, the risk is not so bad, and well, cancer, my grandfather became 92 with 2 packs of cigarettes a day". It is more of a confronting campaign, where the health effects you can expect from smoking regarding cancer are made clear, visually.
(Policymaker, 26114)

More, or less, systematic approaches to intervention development

Participants generally lacked knowledge of behavior change methods. In fact, few participants were aware of the conceptual distinction between personal determinants (psychological variables that can be influenced to eventually engender behavior change, such as risk perception or self-efficacy), behavior change methods or techniques (theoretical methods to influence a given determinant, such as fear appeals or modeling), and applications of these methods (an incarnation of a theoretical method, such as a picture of blackened lungs or a movie with a role model). One participant who was partially aware of this distinction explained:

But then the step from those modifiable determinants to good methods to change that, kind of, that is often difficult. What are effective methods to

achieve those goals and how do you utilize these? Often, the time and knowledge to do this thoroughly is lacking.
(Intervention developer, 22612)

This lack of knowledge about methods for behavior change was one of the reasons for the use of threatening communication: there were no known good alternatives.

Intervention developers often did not have an array of behavior change methods at their disposition, and sometimes they applied the same method in all interventions.

Some other participants had naive ideas of behavior change methods that carried a high risk of yielding non evidence-based results. Specifically, some participants indicated that it was important that an intervention originated from within the target population. However, these target population members generally advocated threatening communication approaches:

Yes, or, they had experience with these kind of campaigns where young people are in a panel that we use for developing such a campaign. They say “Yes, no, it has to be more serious,”. For example, last year, we had a study done into interventions targeting young immigrants, who were also like “Yes, we actually don’t want these things addressed with humor, but actually it should just be, not too hard, but confronting, because bad things can happen if you have unsafe sex”.

(Intervention developer, 21210)

Because participants often assumed that target population members knew how they themselves could be influenced, this reliance on target population members’ preferences for threatening communication could easily result in the development of threatening interventions.

Among employees of advertising agencies and policymakers, the belief existed that there are no ways to predict in advance whether a campaign would be successful:

And can you estimate a bit, when you’ve made many campaigns, whether campaigns work or not? Regardless of indicators like market share or so, on the basis of your experience?

Yes, that is very hard to say. Because sometimes you're surprised by campaigns that turn out to work very well, while you think, "Well . . .". Or campaigns of which you think, "This has to be great," but it doesn't work, or a customer gives it insufficient chance. That is, um, when you would be able to determine this in advance, you would have found the holy grail.

(Advertising professional, 9416)

Intervention development was considered largely a trial-and-error endeavor, with the development process often being seen as a black box (in advertising, a creative process engaged in by the 'creatives'). Yet, at the same time, in advertising, there were some basic guidelines to guide campaign development. For example, one interviewee explain that a commercial for a product such as soup should always visually show both the soup and the packaging. Another such heuristic was the merit of creativity or originality:

You can do something very strange and very new, but if you do it a second or a third time, then it's already not surprising any more. So then you have the same problem. I think that in the end clients choose to be creative within a given campaign, with a given idea. And that is, um, that works. I also believe in that. And I very much believe in creativity.

(Advertising professional, 9416)

Among participants from advertising agencies, sometimes confrontation and humor were two options to choose from when trying to reach people. When confrontation was considered inappropriate, humor would be the alternative approach:

Well, I think that you choose humor at a time you actually want to point something out to people, but you don't want to pedantically wag your finger. And if you do it in a humorous way then it does come across differently to people than when you say, "eh, you're not allowed to do this, or you have to do that."

Yes.

That you then mainly choose humor. So that it does come across, but that people don't think, "oh, there you have them with their wagging finger". I think that that's the way you choose for humor.

(Advertising professional, 22111)

Beliefs in advertising agencies about behavior change methods proved relevant because intervention developers sometimes trusted advertising agencies to know how to influence target population members. At the same time, when advertising agencies delivered a product or presented an intermediate step that intervention developers judged to be unacceptable (i.e. not in line with known goals or constraints), intervention developers would generally communicate this and demand adjustments.

Participants generally conceded that evaluating whether an intervention had successfully induced behavior change was complicated. Understandably, besides the scientists, very few participants mentioned the possibility of examining such evaluations in a laboratory setting. Instead, often other indicators were relied on as indicators for effectiveness. One such indicator was the degree to which an intervention was recognized or remembered, or the perceived impact as reported by introspection of target population members:

So how do you want to verify whether goals you set for an intervention, whether those are met after some time?

Well, for now that is mainly in narrative form, it's mainly about statements of people, to go start and maintain a dialogue with young people and teachers and other involved people, like, well, "did it touch you, did it do something for you?"

(Intervention developer, 18314)

Other reasons to use or not use threatening communication and differences between key actors

Some participants reported favoring pictures on packs of cigarettes, not to induce fear, but simply to make the packaging less attractive:

I also don't believe that a picture in itself necessarily causes somebody to quit, if you say that I don't think you can deliver. What it does do is, it makes the product less attractive. Now the tobacco industry still tries, very glamourizing, to make it attractive, make it pretty. In America, they have special pink packages, to target women. In other countries they have packages with only five cigarettes, to make it more attractive for young

people. I think that measures like this can make a cigarette pack less attractive.

(Policymaker, 26114)

Also, external influences played a role. Participants indicated that when politicians or policymakers pressed for interventions that addressed a given problem, they would often prioritize quick and clearly visible results over effective evidence-based interventions (note that this fits well with advertising agencies' drive for originality):

And in practice people then start to do something, eh, because the municipality also has to show that something is happening, and politics also asks for it, and also asks for visible activities and results preferably.

(Intervention developer, 31317)

In addition, intervention developers sometimes operated within intermediary organizations, such as schools, that were in favor of threatening approaches, and were sometimes hard to convince otherwise. Similarly, funders' preferences were also taken into account during intervention development.

When participants were not in favor of threatening communication, their reasons were not always based upon the understanding of the inefficacy of threatening communications. A small minority of participants cited the Extended Parallel Process Model (or explained similar dynamics). Other reasons included that fear was not considered an intrinsic motivator (reflecting the implicit assumption that intrinsic motivation is superior to extrinsic motivation) and that their organization just "did not believe in motivating through fear". One participant stated that there was a risk that the negative affect would be associated to the health promoting organization where the intervention originated, which may decrease donations or susceptibility to future messages.

Finally, one additional overarching observation was that although most beliefs did not seem specific to one or a few categories of key actors, one clear pattern

emerged. Participants who were closer to actual intervention development often had a generic idea that there was something wrong with inducing fear (though they rarely grasped the underlying dynamics). Participants who were further removed from the intervention development activities often did not have this basic heuristic belief.

Discussion

One of the main reasons for using threatening communication was to confront people with the consequences of a behavior. This served to evoke emotions, which were assumed to serve two goals. The first perceived goal of emotions was to draw attention to the intervention and prompt self-reflection, which would then lead to the desirable behavior, because target population members were assumed to act rationally on hypothesized (successful) increments in risk perceptions. This assumption of rationality also explained the presupposition that achieving awareness or raising risk perception would cause behavior change. This enhanced awareness was the second perceived goal emotions could serve: explicitly emotionally defined risk was often assumed to directly enhance awareness.

Use of threatening communication was exacerbated by incomplete theoretical knowledge. This resulted in, for example, threatening interventions to not be considered fear inducing; underestimation of what is required to enhance self-efficacy; and overestimation of efficacy levels in the target population. Most participants did not know many behavior change methods, threatening communication sometimes being the best known solution. Participants often believed the target population could help in identifying useful methods, and some relied on advertising agencies, who mainly advocated originality, confrontation, and humor. The complexity of the evaluation of behavior change interventions often lead participants to adopt proxies for effectiveness such as how well-known an intervention was.

Finally, working with external organizations sometimes facilitated the choice for threatening communications: funders or intermediary organizations such as schools sometimes preferred threatening communication, and politicians often desired quick and salient, rather than thoroughly researched, interventions. This last finding was already hypothesized decades ago (Soames Job, 1988), but has not been empirically investigated until now.

It is clear that the decades of communication by behavior change scientists regarding the ineffectiveness of health threats has had its results, as most intervention developers got the gist of it. However, usually not more than the gist, which still leaves many opportunities for threatening communications. This makes sense, as most intervention developers were not behavior change scientists, or even psychologists. This also explains a second erroneous assumption, namely that humans act rationally, being driven by something similar to expected utility theory (which is known to be incorrect, see Kahneman & Tversky, 1979).

At the same time, the choice for threatening communication was also based on some characteristics of behavior change communications that were consistent with the scientific evidence: it *is* necessary to draw attention to an intervention, and the interventions *do* have to inspire self-reflection to a degree. However, people generally direct their attention away from threatening information (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & van IJzendoorn, 2007), especially if they are not confident they can deflect the danger (Kessels et al., 2010; Nielsen & Shapiro, 2009). Fear-arousing information therefore seems a particularly poor attempt to draw attention. This knowledge, however, was apparently lacking among our participants.

It became clear that intervention developers often did not know many behavior change methods, sometimes knowing no alternatives to threatening communication at

all. Sometimes, they relied upon target population members to tell them which methods to use; but target population members often advocated fear (Biener, Ji, Gilpin, & Albers, 2004; Goodall & Appiah, 2008; Lennon & Rentfro, 2010). Some intervention developers also relied on advertising agency employees, who lacked knowledge on behavior change methods (and in fact, those advertising agency employees following the literature in their field may in fact be in favour of threatening communication, see for example Latour, Snipes, & Bliss, 1996). At the same time, intervention developers would also correct advertising agencies when they noticed errors, although time constraints often restrained possibilities for adjustments.

Integrating these various aspects of the decision making process, some possible actions emerge that may be taken to decrease the use of threatening communication. First, of course, it is important to provide intervention developers with a toolbox of different behavior change methods. This provides them with alternatives to threatening communication. Such a toolbox is available, for example, in intervention development protocols such as Intervention Mapping (Kok, Bartholomew, Parcel, Gottlieb, & Fernandez, this issue; see also Bartholomew et al., 2011) and the methodology being developed based on the BCT taxonomy (Abraham & Michie, 2008) and the Behavior Change Wheel (Michie, van Stralen, & West, 2011). Second, it seems useful to educate intervention developers on two psychological knowledge elements: firstly, it is unwise to consider humans rational (Kahneman & Tversky, 1979); and secondly, threatening information averts attention (Bar-Haim et al., 2007) and prompts defensive reactions (Erceg-Hurn & Steed, 2011; Ruiter et al., this issue), use of negative emotions is very dangerous, and one should exercise caution when labeling something as “not fear inducing”. This is connected to the third point: intervention developers should be urged to apply the framework for ethical

justification provided by Brown and Whiting (this issue). Fourth, the use of determinant studies as a method of establishing intervention targets can be promoted. Comparison of the relevance of several cognitive determinants shows that often threat (i.e. severity and susceptibility) is not the most expedient intervention target (but note that when the target of the threat is somebody else, such as one's children, threat does seem effective; Tannenbaum et al., this issue). Fifth, methods to enhance self-efficacy should be explained clearly.

Sixth, and this is a very important point indeed: it would be beneficial if intervention developers are convinced of their expertise in this matter. Intervention developers need to be empowered to act as professionals when dealing with intermediary organizations, advertising agencies, and potentially even funders and politicians, who as well-meaning laymen are susceptible to the intuitive appeal of threatening communication. To this end, providing intervention developers with an overview of the evidence regarding the behavior change potential of threatening information can be helpful. Finally, alternative tools should be provided to attract attention, as this was one of the reasons for using threatening communication. Somewhat ironically, such tools may be found in the marketing and advertising literature (Maughan, Gutnikov, & Stevens, 2007; Pieters & Wedel, 2012). A concrete recommendation is simply the opposite of the belief that threatening communication attracts attention: people look more at advertisements they like (Maughan et al., 2007). Note that in compiling guidelines for attracting attention, it is crucial to respect the parameters of effectiveness of behavior change methods (Bartholomew et al., 2011).

An intervention implementing these elements may succeed in eradicating the widespread reliance on threatening interventions, paving the way to the use of more

effective behavior change methods. In addition, the findings from the current study should be corroborated by quantitative studies, so that the pertinent beliefs of these groups of key actors can be mapped in terms of their relative importance.

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