Towards consensus on fear appeals: a rejoinder to the commentaries on Kok, Peters, Kessels, ten Hoor, and Ruiter (2018)

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We are glad that our – admittedly controversially titled – article succeeded in sparking lively debate (Borland, 2018; Brewer, Hall, & Noar, 2018; Malouff, 2018; Niederdeppe & Kemp, 2018; Peters & Shoots-Reinhard, 2018; Roberto, Mongeau, & Liu, 2018; White & Albarracín, 2018). We were faced with the considerable challenge of responding to so many commentaries. Therefore, this rejoinder has two parts. In this text, we will emphasise our common ground based on a number of major points that pervade across the commentaries, while we provide more comprehensive and detailed responses to each commentary in the supplementary file.

We feel it is time for the debate about fear appeal effectiveness to mature into a more collaborative effort for two reasons. First, this debate does not help in achieving our mutual goal: optimally effective behaviour change interventions. Second, while this debate revealed a number of fundamental disagreements (e.g., regarding what constitutes evidence), it also revealed substantial consensus: enough to build on going forward.

Although our article concerns threatening communication in general and applies to all behaviours, the ensuing debate centred around the most ubiquitous instance of threatening communication: health communications on tobacco packaging. Presently, this space is used for pictorial warning labels, aiming to promote smoking cessation among smokers and discourage smoking initiation among vulnerable non-smokers, and many of the commentary authors are researchers who have conducted research on warning labels. Therefore, we will also use warning labels as an example; but note that the processing of threatening information is a characteristic of human psychology and so applies to all threatening communications.

Consensus 1: the urgency of the problem

First, the debate over fear appeal effectiveness made clear how committed all involved are to promoting the health of vulnerable populations. We all agree that current smokers and vulnerable ex-smokers deserve the best possible behaviour change interventions that our discipline of health psychology can devise. That consensus exists regarding this point may seem trivial, but we feel that it is important to keep in mind that we all want the same: promoting health.
Consensus 2: the relative roles of threat and efficacy

The core argument in our original article (Kok, Peters, Kessels, ten Hoor & Ruiter, 2018) was that without high efficacy (i.e., both high self-efficacy and high response efficacy; also see Roberto et al., 2018), threatening communication has no effect or may backfire. This thesis was heavily debated, yet a clear consensus also emerged. In their commentary, Brewer et al. (2018 and Figure 1 in the supplemental part of this rejoinder) discuss the ‘weak’ and ‘strong’ hypotheses of Tannenbaum et al. (2015). The ‘weak hypothesis’ holds that when the targeted individuals do not believe they can change their behaviour, threatening communications have weak or no effects; whereas the ‘strong hypothesis’ holds that in that case, threatening communications backfire.

The consensus lies in that although we differ in our hypotheses regarding what exactly will happen under low efficacy, we all agree that threatening communications have at best small effects when targeting populations low in efficacy, unless they are accompanied by an intervention that successfully increases perceived efficacy.

We have lifted the relevant quotes from each of the seven commentaries to illustrate this consensus. The full list is included in the supplementary part of this rejoinder, but we include the first three quotes here as an illustration: ‘That motivational messages will be more effective when people believe they have the capacity to act is an outcome predicted by most health theories, including ones that would support use of threat communications […]’ (Borland, 2018), ‘[…] we agree with Kok et al. that the warnings would likely work even better with a self-efficacy message, and that self-efficacy messages should accompany fear communications whenever possible’ (Brewer et al., 2018), and ‘[…] the higher the self-efficacy individuals have for changing a health-related behavior, the more likely they are to make the change’ (Malouff, 2018).

Consensus 3: health behaviours have many determinants besides risk perceptions

The last point of agreement is that health behaviours (e.g., smoking cessation and initiation) are influenced by many determinants. Of course, efficacy, consisting of self-efficacy and response efficacy, is clearly a determinant we all agree is crucial; but the commentators also list, for example, disgust and negative affect as additional behavioural determinants, and many more determinants can be identified from theory and empirical studies (see Kok et al., 2018, and the first preliminary point in the supplemental file).

Building on consensus: designing the most effective behaviour change intervention

So, the commentators and ourselves agree that there are serious health problems, deserving of the most effective health communications we can develop; we agree that unless efficacy (i.e., both self-efficacy and response efficacy; see Roberto et al., 2018) is high, fear appeals have at best suboptimal effects and may even have null effects; and we agree that behaviour has many different determinants. Although this was not explicit from the debate, we assume that we all also agree that effective behaviour change interventions must target those determinants that most strongly predict the target behaviour, and they must do so with those behaviour change methods that have been empirically demonstrated to be effective in targeting these determinants.

We believe that there are two productive, parallel routes to take from here. The simpler route is based on our conviction that academic debates should conclude in an itinerary for future research to resolve the remaining disagreements. We have therefore made a start in the supplementary file (also see the linked project and components at the Open Science Framework at https://osf.io/a2v46/). The first of these studies is a systematic literature synthesis of all determinants of
smoking initiation and successful cessation. The overview produced by this synthesis can facilitate mapping the second route.

This second route involves a number of steps towards optimal health communication. Although applicable to all behaviour change and health promotion, we will explain these steps using the example of smoking. Figure 1 shows a hypothetical illustration of these steps. This illustration is based on the following reasoning.

Effectively changing behaviour always first requires a detailed understanding of the important and changeable personal and external factors driving that target behaviour. These factors can be described by social cognitive models of human behaviour (e.g., Conner & Norman, 2015), which hold that behaviour change is most likely when people have the motivation to change, and do not experience barriers or a lack of skills to conduct the new behaviour (e.g., Schwarzer & Luszczynska, 2015). Motivation (or intention) is determined by many psychological variables (e.g., general evaluations of behavioural outcomes, perceptions of behaviours and approval of important others, and self-efficacy; Ajzen, 2015), which consist of specific sub-determinants (e.g., beliefs) that people hold or acquire through exposure to information and education (Peters & Crutzen, 2017). Behaviour change interventions, then, consist of components that target those sub-determinants that most strongly predict the desirable behaviour as established using, for example, belief elicitation procedures (see Ajzen, 2015 or Peters, 2014) and quantitative determinant studies (see Crutzen, Peters, & Noijen, 2017). Each component must apply one or more behaviour change methods (see, for example, the list at http://osf.io/sqtuz/) to be able to change the relevant determinant (Crutzen & Peters, 2018).

Figure 1 shows a hypothetical application of these dynamics to health communication on tobacco packaging to promote smoking cessation. From right to left, cessation is determined by seven determinants, each consisting of sub-determinants, which are targeted by tobacco packaging messages, which each derive their effectiveness from a method for behaviour change.

Figure 1. An illustration of a hypothetical subset of potential sub-determinants (e.g., beliefs) that may be important for successful smoking cessation, the determinants they fall under, applications that could be used as health communications on tobacco packaging to target those sub-determinants, and the methods selected on the basis of those determinants, by virtue of which the applications can have an effect (most examples derived from Thrasher et al., 2015; see Kok et al., 2016, for the lists of methods).
Conclusion and the path towards further consensus

Based on this second route, as a scientific community of health psychologists, we owe it vulnerable populations to ask ourselves these questions:

- What are the strongest determinants of the desirable behaviours (e.g., smoking cessation)?
- Which methods are most effective to change those determinants?
- Which of those methods can we successfully apply given health communication constraints (e.g., on tobacco packaging)?

We are deeply sceptical that the answer to the first question will be that ‘risk perception’ or ‘disgust’ are the strongest determinants of either initiation or successful cessation, and that the final outcome is ‘fear appeals’, but we concede that it is possible.

Regardless, we assume we are in agreement with the commentators that behaviour change must be approached systematically, using theory and strong empirical evidence to work from determinant to method to intervention, rather than retaining potentially suboptimal interventions (literally at all costs). We are confident that if henceforth we follow the two parallel routes we propose, this will ultimately yield optimal behaviour change interventions.

Notes

1. This supplementary file is also hosted Open Access at the Open Science Framework at https://osf.io/a2v46/.
2. This is obvious at the personal level, but at environmental levels (inter-individual, organizational, community, society), these same models can be used once the environmental agents have been identified that are responsible for changing each environmental condition, as well as additional theories (e.g. Glanz, Rimer, & Viswanath, 2015).

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