



# Smoker's recall of fear appeal imagery: Examining the effect of fear intensity and fear type



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## ABSTRACT

This study examines the effect of fear intensity and type of fear on smokers' recall of fear-based graphic stimuli. A  $2 \times 2$  factorial design manipulates fear intensity (high vs. low) and fear type (physical vs. social). Results show high intensity messages promote superior recall, with recall heightening when the message also depicts physical harm. This study also shows that viewing time moderates the interaction effect of fear intensity and fear type on recall. Findings demonstrate that smokers report greater recall when exposed to highly intense messages that depict physical harm, with the effect only significant when viewing time is low. We argue that high intensity physical harm messages encourage greater message recall when viewed for only a short period due to shock arousal.

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## CHINESE ABSTRACT

本研究探讨有关吸烟者以恐惧为基础的图像刺激回忆的强度和类型。研究使用  $2 \times 2$  析因设计控制恐惧强度（高与低）和恐惧类型（物理型与社会型）。结果表明，高强度消息的回忆效果显著，接触到描绘身体上伤害的信息时回忆增强。研究还表明，观察时间会中和恐惧强度和恐惧类型的互动效应。结果显示，当在较短的观察时间内接触到高强度的描述人身伤害的信息时，吸烟者有更多回忆。我们认为，由于冲击觉醒，吸烟者的观察时间很短，高强度的人身伤害消息会引起更多回忆。

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## 1. Introduction

Over the past forty years, the Australian government has promoted anti-smoking messages within the community. In 1972, anti-smoking messages came in the form of production and distribution of signs requesting smokers to not smoke within the nearby area. Later, in the 1980s and 1990s when the true effects of smoking became known, intervention campaigns were introduced (Tobacco in Australia, 2013). Ever since, Australian government bodies have aimed to raise consumers' awareness of the harms of tobacco use, motivate quitting and discourage the adoption of smoking (Miller et al., 2011). Although some research suggests initiatives, such as plain packaging, reduce the attractiveness and promotional appeal of packaging (Moddie et al., 2011), other researchers find that the removal of point of sale displays that aim to reduce tobacco use will not eliminate all the retail triggers that cue smoking and tobacco purchases (Burton et al., 2013).

Tobacco in Australia's (2013) review of Australian-based messages designed to inhibit the adoption of smoking and/or promote the cessation of smoking behaviour indicates that two main approaches have

been incorporated by Australian state and federal governments. The first approach is the presentation of *simulated health effects* associated with smoking (i.e., symbolic/abstract imagery). For example, the 'Bubblewrap' (2005) campaign burned a hole in bubblewrap with a cigarette as a way to depict human lungs and thus the effect that smoking has on the respiratory system and the onset on emphysema. The second approach typically used is the presentation of *graphic imagery* that depicts either (1) the current harm to the body that smoking causes (i.e. smokers cough, loss of breath); or (2) the harm that smoking can cause in the future (i.e. mouth cancer, emphysema); or lastly, (3) the effects of smoking on others (i.e. the impact smoking has on children).

Whilst it is evident that smoking behaviour in Australia is decreasing (Cancer Council NSW, 2013), a large number of Australians still continue to smoke. According to the Cancer Council NSW (2013), Australians with the highest daily smoking rates are men aged between 30 and 49 years (20.2%) and women aged 40 to 49 years (18.8%). With over 15,000 smoking-related deaths each year in Australia, as well as rising social costs associated with smoking (estimated \$31.5 billion in 2004–2005; Cancer Council NSW, 2013), research designed to understand how to best promote the government's quit smoking message is important for both individuals, the economy, and society at large. Combining approaches used in Australian campaigns, this research examines the effect of the type

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of fear and the intensity of harm depicted in smoking messages on smokers' recall of simulated graphic health messages.

To date, research has examined the effect of fear type and/or intensity on behavioural outcomes (e.g., intention to cease behaviour, Janis and Feshbach, 1953; Powell, 1965; Brooker, 1981; Schoenbachler and Whittler, 1996; Reardon and Miller, 2008). However, no research has examined the effect of fear type and intensity on consumer message recall. With recall of advertising messages remaining a key measure of advertising effectiveness, which is shown to be a critical driver of consumer behaviour (Mehta and Purvis, 2006), the results of this study have significant practical implications regarding advertising effectiveness.

Our aim here is to investigate consumer recall of graphic fear-based messages. We begin with a brief overview of fear appeal research in advertising. We then turn to specific research on fear intensity and fear type. From this theoretical foundation, we conduct an experiment examining the role of fear type and fear intensity on consumer recall. We conclude with a discussion of the implications of our findings and offer directions for future research.

## 2. Fear appeals

Fear is “an unpleasant emotional state characterised by anticipation of pain or great distress...that evolved as a mechanism to protect humans from life threatening situations” (Merriam-Webster, 2002, n.p.). Fear, as an emotional response based on high arousal, has been found to have a significant effect on message recall (Snipes et al., 1999) and message persuasion (Peters et al., 2014), influencing a viewer's affective and behavioural responses (Higbee, 1969; Hyman and Tansey, 1990; King and Reid, 1990; LaTour and Rotfield, 1997). Messages employing fear remain relevant and effective within intervention-targeting campaigns as “fear appeals are one of the most frequently used motivators to get people to help themselves” (Bagozzi and Moore, 1994, p. 56). Interestingly, individuals exposed to various types of appeals have rated negatively valenced fear appeals to be more effective than both rational appeals and other emotional appeals, such as humour (Kim and Lee, 2012; Santa and Cochran, 2008; Siegel, 2002). For example, Santa and Cochran (2008) demonstrated that a fear appeal led to greater negative affect towards driving under the influence (DUI) than an information-based appeal. Further, Kim and Lee (2012) identified that exposure to fear-eliciting stimuli enhanced individuals' attitudes towards a health issue. A review of the literature reveals two dominant categorisations of fear appeals: (1) intensity of the fear depicted (low and high) and (2) type of fear depicted (physical harm and social fear).

### 2.1. Fear intensity

A large number of studies have focused on the effect of fear intensity on message effectiveness (namely in terms of affective and behavioural responses). Mixed results are found when examining the effect of message intensity, with some researchers arguing that high intensity messages result in more positive attitudes and behaviour (LaTour and Pitts 1989; Snipes, LaTour and Bliss 1996, 1999) whilst others suggest that low intensity messages are more persuasive and effective (Duke et al., 1993; LaTour and Zahra, 1989).

When considering message recall, research has demonstrated that high arousal advertisements are most effective (Biener et al., 2004; Lang et al., 1995). Drawing from the notion of ‘shock’, which is synonymous with highly intense emotional messages (e.g., sexual, violent; Hyllegard et al., 2009), researchers have demonstrated that a message (or story) which has strong emotional arousal (or impact) leads to an increase in memory and thus recall (Biener et al., 2004; Lang et al., 1995, 1996; Sutherland and Mather, 2012). We, therefore, expect a high intensity fear message to promote greater arousal, facilitating superior message recall. Formally, we hypothesise:

**Hypothesis 1.** *Exposure to imagery depicting a high level of harm will result in higher message recall than imagery depicting a lower level of harm.*

### 2.2. Fear type

Research also examines fear appeals in the context of the type of fear depicted in the advertisement. Typically, researchers distinguish between physical fear (harm to oneself) and social fear (harm inflicted by one's actions on another individual) (e.g. Schoenbachler and Whittler, 1996; Laroche et al., 2001; Brennan and Binney, 2010). Powell (1965) presented the first known study focusing on the impact of fear type. Powell (1965) observed that fear appeals which depicted harm to the listener's family (social harm) were more effective than fear appeals that depicted harm to the listener themselves. Since this original study, results regarding the effectiveness of various types of fear appeals are inconsistent in the literature. For example, whilst Schoenbachler and Whittler (1996) demonstrated that messages depicting physical harm were less persuasive than those depicting social harm, Reardon and Miller (2008) found that messages depicting physical harm were more effective than those depicting social harm, in terms of attitude towards the advertisement and behavioural intentions. As such, we posit that the relative effectiveness of fear type is dependent on the outcome investigated.

In the context of recall, research in evolutionary psychology has demonstrated that cognitive processes are shaped by adaption (Tooby and Cosmides, 2005). Founded on the notion that an individual's ultimate goal is to stay alive, psychologists argue that individuals have evolved to attend to situations where their survival is made salient (e.g., Challis et al., 1996), with information retention and message compliance found to be superior in situations of self-relevance (Maille and Hoffmann, 2013; Nairne et al., 2007). Drawing from evolutionary-based explanations of memory performance, we therefore argue that a message depicting harm to one's self will enhance survival salience, promoting message recall. As a result, we hypothesise:

**Hypothesis 2.** *Exposure to imagery depicting harm to the viewer (physical harm) will result in higher message recall than imagery depicting harm to others (social harm).*

### 2.3. Interaction of fear intensity and fear type

Despite numerous studies examining the effects of both fear intensity and fear type (e.g., Brooker, 1981; King and Reid, 1990; Reardon and Miller, 2008), only one study, Powell (1965), has demonstrated an interaction between these fear variables. Specifically, Powell's (1965) study of anxiety arousal identified that fear appeals which depicted social harm (harm to family) were more effective when presented utilising a high intensity appeal, than low intensity appeal. Drawing from prior research focusing on message intensity (e.g., LaTour and Pitts 1989; LaTour, Snipes and Bliss 1996, 1999) and evolutionary-based memory performance, however, we posit the occurrence of an alternate interaction. Specifically, we suggest that a message that enhances survival salience (harm to self) will promote superior recall, with these effects heightened when the survival threat is of a high intensity. We therefore hypothesise:

**Hypothesis 3.** *Exposure to imagery depicting a high level of physical harm will result in higher message recall than when imagery depicts a high level of social harm. Exposure to imagery depicting a low level of harm will result in equal levels of message recall, whether the imagery depicts physical or social harm.*

Recent research suggests that high severity health-based messages foster selective exposure across cultures (Hastall and Knobloch-Westerwick, 2013). Specifically, negatively valenced fear-based messages are often used to initially ‘shock’ and arouse a viewer, with the shock

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