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RESEARCH ARTICLE

No Text Is Worth Dying For: The Role of Emotion Regulation in a Distracted Driving Campaign

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Safe driving campaigns frequently use threat-appeals to portray the consequences of risky driving and generate negative emotion. However, increasing perceived risk is often ineffective in motivating behaviour change. A potential approach to increasing the efficacy of safe driving campaigns is the incorporation of emotion regulation strategies. This study used an independent-groups experimental design with a sample of 53 participants (21 males, 32 females) aged 18–65 years (M = 43) to investigate if employing the emotion regulation strategies of distraction and cognitive reappraisal reduces negative emotion while viewing a distracted driving campaign film. Findings revealed that employing emotion regulation strategies significantly reduced negative emotion with a medium effect size, in comparison to the control condition, confirming the hypothesis.

Keywords: emotion regulation; distracted driving; reappraisal; distraction; behaviour change; threat-appeal

A considerable number of people are killed on the roads each year and sadly many of these preventable deaths were a direct result of human factors, such as risky driving behaviours (Carey & Sarma, 2016). Delhomme, Dobbeleer, Forward, and Simões (2009) reported that over 40,000 people are killed in road traffic accidents each year in Europe. In addition to the well-known risks of speeding and alcohol consumption, mobile phone use while driving can have similar devastating consequences (Klauer, Guo, & Simons-Morton, 2014). Simulator studies have demonstrated that mobile phone use while driving impairs drivers' performance to an equal or greater extent as driving under the influence of alcohol (Burns, Parkes, Burton, Smith, & Burch, 2002; Leung, Croft, Jackson, Howard, & Mckenzie, 2012; Strayer, Drews, & Crouch, 2006).

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From the previous research into account, it can be inferred that the most common and most dangerous distraction behaviour for drivers to engage in behind the wheel is mobile phone use (Caird, Johnston, Willness, Asbridge, & Steel, 2014). However, concerning evidence suggests that using a mobile phone while driving is often considered more socially acceptable than drink driving (Atchley, Atwood, & Boulton, 2011). Furthermore, due to the widespread use of smartphones, drivers are constantly confronted with distractions from their concentration (Department for Transport, 2016). Haque and Washington (2014) found that conversing on a mobile phone while driving increases cognitive load, resulting in more than a 40% increase in reaction times to peripheral traffic events. Additionally, Rosenberger (2017) suggests the

driver's field of awareness is compromised by the act of conversing on a mobile phone, and that this compromise in awareness is to an equal extent, whether using a handheld or hands-free device.

Additionally, evidence suggests that texting has a substantially greater negative impact on driving performance than conversing on a mobile phone (Oviedo-Trespalacios, Haque, King, & Washington, 2016). Simulator studies have suggested that texting while driving increases reaction times by 200%, resulting in high-risks for the driver, other road users, and any pedestrians in the vicinity (Choudhary & Velaga, 2017). Consequently, texting while driving can result in increased braking, lane position deviations, and a reduction in time spent focusing vision on the road (Hosking, Young, & Regan, 2009). These poorer driving skills thus substantially increase the risk of being involved in a road traffic accident (Rosenberger, 2017). Drivers who are texting or interacting with a mobile phone are around 23 times more likely to crash (Ulleberg & Rundmo, 2003) with an estimated 6000 deaths a year attributed to distracted driving (Strayer et al., 2006).

Despite these alarming figures, many drivers continue to use their mobile phone while driving. An observational study of over 16,000 drivers in the USA reported that around 23% of drivers were engaged in some kind of distraction behaviour (Kidd, Tison, Chaudhary, McCartt, & Casanova-Powell, 2016). A similar study in England found 15% of drivers were engaged in a distraction behaviour while driving (Sullman, Prat, & Tasci, 2015). Moreover, these figures regarding the amount of distracted drivers appear to be considerably higher in studies utilising a cross-sectional design in comparison to observational methods. For example, Atchley et al. (2011) reported a survey that found over 90% of young adults indicating they regularly read or send texts while driving, despite being aware of the risks involved. Furthermore, the prevalence of distracted driving appears to be equally common among a wide age range of drivers from teenagers up to around 59 years old (Kidd et al., 2016).

In response to these alarming figures, the government has tightened legislation to reflect the serious nature of mobile phone use while driving. In the United Kingdom, since legislation was introduced in 2017, being distracted by a mobile phone while driving results in at least 6 penalty points and a £200 fine. In addition, any new driver caught using a mobile phone behind the wheel within 2 years of passing their driving test will immediately lose their licence (Department of Driving & Transport, 2017). This legislation is supported by road safety campaigns designed to induce changes in driving behaviours in order to reduce the number of road traffic accidents (Delaney, Lough, Whelan, & Cameron, 2004). Road safety campaigns can be either rational, involving facts and figures, or emotional, such as threat-appeals (Phillips, Ulleberg, & Vaa, 2011). However, the efficacy of these campaigns and the type of campaign that is likely to be most effective, remains elusive.

The majority of distracted driving campaigns tends to focus on emotional rather than rational approaches. Organisations involved in promoting road safety have delivered emotional distracted driving campaigns such as the Be Phone Smart campaign (RAC, 2017) and It Can Wait (AT&T, 2017). These campaigns aim to increase public knowledge of the risks of distracted driving and influence behaviour using threat-appeal strategies (Peters, Ruiter, & Kok, 2013). Campaigns employing a threat-appeal framework are designed to communicate the negative risks associated with distracted driving, through the use of disturbing visual images and films displaying the consequences of using a mobile phone behind the wheel (Roskos-Ewoldsen, Yu, & Rhodes, 2004).

Threat-appeals have previously been efficacious in influencing driving behaviours, for example, Atchley, Hadlock, and Lane (2012) reported that drink driving campaigns appear to have successfully induced a shift in social norms with drink driving being considered less socially acceptable in the 21st century in comparison to the 1970s (Pliner & Cappell, 1977). Similarly, a meta-analysis by Phillips and colleagues (2011) reported that drink driving campaigns are associated with a greater reduction in road traffic accidents, in comparison to other themes of road safety campaigns, such as distracted driving. These findings suggest that threat-appeals do not

appear to produce the same beneficial effect for distracted driving campaigns as drink driving campaigns, as many drivers continue to text and drive despite being aware of the risks involved (Atchley et al., 2011). Consequently, further research regarding the application of threat-appeals to distracted driving campaigns is warranted.

Theoretical Models Applied to Road Safety Campaigns

The use of disturbing images in threat-appeal safety campaigns are typically designed to evoke negative emotional responses that motivate behaviour change (Carey & Sarma, 2016). Threat-appeals attempt to use fear to persuade individuals to take a specific action and consider threat to be motivation for behaviour change (Abdu, Shinar, & Meiran, 2012; Witte & Allen, 2000) and are based around social cognitive frameworks such as the Extended Parallel Process Model (EPPM; Witte & Allen, 2000). According to the EPPM, individuals assess threat-based messages in terms of how severe they consider the threat to be; perceived severity, as well as the likelihood of it happening to them; perceived susceptibility (Carey & Sarma, 2016). If threats are appraised as being trivial and unlikely to cause harm to the individual themselves, the message is unlikely to be processed further (Witte & Allen, 2000). However, this model also values the importance of the individual's self-efficacy (Sallis, Owen, & Fisher, 2015), that is, the confidence an individual has in their own ability to perform a given behaviour and be successful in achieving a desired outcome (Bandura, 1977). EPPM states that in order for threat-appeals to be effective, the observer's self-efficacy must be higher than their level of fear (Witte & Allen, 2000), however this fundamental factor is frequently overlooked by safe driving campaigns.

In the context of a safe driving campaign, messages conveyed to the audience are evaluated in terms of how achievable the recommended behaviour is and how successful it is likely to be at avoiding the threat (Carey & Sarma, 2016). Subsequently, in order to effectively influence behaviour change, safe driving campaigns must be appraised by viewers as having serious consequences that are likely to happen to them, in addition to the suggested behaviour changes being considered achievable and likely to be successful (Lewis, Watson, White, & Tay, 2007). However, threat-appeals are often ineffective in motivating behaviour change and are rarely designed to increase observer's self-efficacy (Lewis et al., 2007). A comprehensive meta-analysis by Phillips and colleagues (2011) confirms the inadequacy of many road safety campaigns, concluding that they contribute to an average of 9% reduction in road traffic accidents. Therefore, alternative strategies for encouraging positive behaviour changes are required, with a specific focus on mobile phone use while driving.

An area not yet explored in the current literature is the role of emotion regulation in road safety campaigns. Many threat-appeal road safety campaigns evoke negative emotions that can have deleterious influences on behaviour. Experimental evidence suggests negative emotional states can adversely influence risk perception resulting in increased risky behaviours (Hu, Xie, & Li, 2013; Mesken, Hagenzieker, Rothengatter, & de Waard, 2007; Nelson, Atchley, & Little, 2009; Rhodes & Pivik, 2011). Similarly, in road safety campaigns where safe driving videos provoke negative emotional responses, many fail to motivate behaviour change with the majority of the target audience continuing to text and drive (Young & Lenné, 2010).

Despite the empirical evidence outlining the detrimental effect of negative emotion on behaviour change, existing threat-appeal-based road safety campaigns frequently focus solely on evoking fear and fail to consider the importance of self-efficacy in behaviour change (Carey & Sarma, 2016). Consequently, in order to be successful, it is imperative that distracted driving campaigns utilise theoretical frameworks and empirical evidence to develop effective campaign strategies. Designing campaigns that encompass empirical evidence on emotion regulation, alongside theoretical frameworks of behaviour change, such as the EPPM, can help to bridge this conceptual gap.

Emotion Regulation

Humans are continuously influencing their environment by the behaviours they display (Campbell-Sills, Barlow, Brown, & Hofmann, 2006). However, behavioural choices are not always governed by logical cognitive appraisal of a situation and are often influenced by emotions. Emotions are generated when an individual appraises a situation as being relevant to a current goal and can influence behaviour in various ways, such as by optimising sensory intake or diverting attention to a stimulus in the environment (Gross & John, 2003). Therefore, emotional responses can have a profound effect on the body's physiological and cognitive state, subsequently modulating behaviour (Quoidbach, Mikolajczak, & Gross, 2015). Consequently, in the context of a safe driving campaign it is imperative to ensure that any emotions generated in the viewers, have a positive influence on the logical cognitive appraisal of a situation, alongside modulating the destructive impact of negative emotions (Gross & John, 2003). The negative influence of emotions on behavioural responses can be modulated by increasing an individual's ability to influence their own emotional state (Ochsner & Gross, 2005) through the employment of emotion regulation strategies (Lazarus, 1991).

There are multiple opportunities to employ various emotion regulation strategies at different stages of the emotion generation process, as a stimulus must be attended to, processed and appraised as being emotionally significant in order to generate an emotional response (Barrett, Mesquita, Ochsner, & Gross, 2007). Consequently, emotion regulation can be utilised at two key stages of emotional processing, the emotion generation stage and the subsequent response to the emotion (Goldin, McRae, Ramel, & Gross, 2008). According to the Process Model of Emotion Regulation, emotional processing can be disengaged at an early attentional stage or re-engaged at a later semantic processing stage (Aldao, Sheppes, & Gross, 2015; Gross, 1998).

Early stage emotion regulation strategies, such as distraction, rapidly divert attention away from the emotional stimuli, preventing further processing of the stimuli and avoiding the stimulus being appraised as threatening (Schönfelder, Kanske, Heissler, & Wessa, 2014). However, such a quick response inhibits the opportunity to develop important coping mechanisms essential for dealing with similar situations in the future (Wilson & Gilbert, 2008). In order for long-term behaviour change to be successful, the emotional information must be processed using a late processing strategy such as reappraisal. Cognitive reappraisal occurs at the late semantic processing stage and involves changing the way one thinks about a stimulus, in order to change its emotional influence (Buhle et al., 2014; Sheppes & Meiran, 2007). The existing literature emphasises reappraisal as being an effective regulation strategy in situations that require behaviour change and the development of coping mechanisms (Buhle et al., 2014; McRae et al., 2012; Wolgast, Lundh, & Viborg, 2011).

Nonetheless, reappraisal is not always effective in regulating high-intensity emotions such as fear, due to powerful competition between the emotions being generated and attempts to regulate behavioural responses. In situations of high-intensity emotion where long-term behaviour change is required, exploiting multiple emotion regulation strategies across different processing stages, such as distraction and reappraisal, may increase effectiveness (Aldao et al., 2015). For example, employing distraction at an early processing stage diverts attention away from the emotional stimulus by producing neutral non-emotional thoughts (Dillen & Koole, 2007), followed by reappraisal at the late-semantic stage to divert attention to cognitive processes that are conducive for long-term behaviour change (Aldao et al., 2015).

Emotion Regulation Strategies Applied to Distracted Driving

In the context of a distracted driving campaign the emotion regulation strategies of distraction and reappraisal can be utilised to down-regulate negative emotion. Additionally, in accordance with the EPPM, self-efficacy can be increased by the direct communication of achievable behaviour change messages that can be employed by viewers in order to reduce their susceptibility to the potential

consequences of distracted driving. By down-regulating negative emotion and introducing safety messages that increase self-efficacy and are conducive to positive behavioural changes, the effectiveness of distracted driving campaigns may be increased (Zharekhina & Kubacki, 2015).

The Present Study and Hypothesis

The present study aims to investigate the role of emotion regulation in a distracted driving campaign. Participants in the experimental group, hereafter the emotion regulation condition, will be encouraged to employ emotion regulation strategies, alongside observing messages designed to increase self-efficacy, while watching a distracted driving campaign film. By contrast, participants in the control group will watch the film without being exposed to any emotion regulation manipulation or self-efficacy inducing messages.

The self-reported negative emotion will be compared between participants in the emotion regulation condition and the control group, to investigate the following research question: Does emotion regulation reduce negative emotion in viewers of a distracted driving campaign film? It is hypothesised that participants using emotion regulation strategies whilst watching a distracted driving video, will report less negative emotion than participants in the control condition viewing the video without any emotion regulation instructions.

Method

Ethical approval for the study was granted by the Ethics Committee of University of the Highlands & Islands and conformed to the BPS Code of Ethics and Conduct. A quantitative independent-groups experimental design was used to compare the effects of emotion regulation on self-reported negative emotion whilst watching a distracted driving video. The independent variable of emotion regulation was manipulated across two conditions: the emotion regulation condition and the control condition. The effect of the emotion regulation manipulation on self-reported negative and positive emotion was measured.

Participants

The sample comprised of 53 participants (21 males, 32 females) who volunteered to take part by replying to advertisements distributed by university email, social media, and the local press. The sample encompassed students, university staff, and members of the public, aged 18–65 years old (M = 43 years), all local to the surrounding area of the University of the Highlands & Islands. Participants were randomly assigned to either the emotion regulation condition (n = 26) or the control condition (n = 27), in a 1:1 ratio according to a computer-generated simple randomisation procedure (Dallal, 2007).

There were no significant differences for age, as shown in Figure 1, or gender between the conditions. The emotion regulation condition consisted of 11 males (M = 46.1 years) and 15 females (M = 37.8 years). The control condition consisted of 10 males (M = 40.7 years) and 17 females (M = 41.7 years). All participants held a full UK car driving licence and identified themselves as being regular drivers and daily mobile phone users.

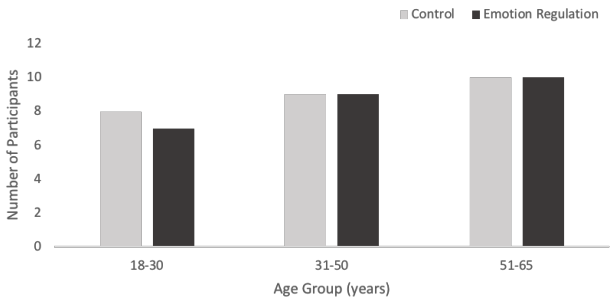

Figure 1. Number of participants in each age group across the control and emotion regulation conditions.

Materials

A briefing and information sheet was distributed and verbally delivered to all participants. Participants were asked if they had any questions before reading and signing a consent form. Emotion was measured after watching the film using a self-report 20-item mood scale; the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS comprises two mood scales, creating

separate scores for positive and negative emotions for each individual. Positive emotions include interested, attentive, and determined, whereas negative emotions include upset, guilty, and ashamed. Participants are required to indicate the extent they felt each emotion on a 5-point Likert scale, that ranges from 1, very slightly or not at all to 5, extremely. Watson and colleagues (1988) reported the PANAS to have moderately good reliability and validity, with a Cronbach alpha coefficient for the positive emotion scale of 0.86 to 0.99, and 0.84 to 0.87 for the negative emotion scale. The PANAS has been widely cited as being a reliable measure of emotion (Ostir, Smith, Smith, & Ottenbacher, 2005).

The stimulus was a distracted driving film (Marshfield Student Broadcasting, 2017) played on a smart board computer with a 200 cm diameter. The film was five minutes long and involved a group of four young women getting ready for a party and then travelling to the party together in a car, with one of the group driving. The driver receives a text on her phone while driving and crashes the car when trying to reply to the text, resulting in the death of her three friends. Permission to use the film was granted by Marshfield Student Broadcasting (Marshfield Student Broadcasting, 2017).

A distraction and reappraisal task was completed by participants in the emotion regulation condition, comprising of a checklist of 12 safe driving messages designed to induce cognitive reappraisal and increase self-efficacy. The checklist consisted of message such as 'don't message your friends if you know they are driving', 'no text is worth dying for' and 'avoid distractions, put your phone on flight mode'. In accordance with the EPPM, the messages were designed to increase self-efficacy by introducing positive behavioural changes that can be easily implemented. The distracted driving film was edited so that the messages appeared individually at the bottom of the screen throughout the distracted driving film, at times that would not interfere with key aspects of the story in the film, for example, when the actors were walking to the car, or while the passengers were chatting. Each message remained on the screen for 8 seconds, and participants in the emotion regulation condition were instructed put a tick next to the corresponding message on their checklist, each time a message appeared on the screen.

Procedure

All experimental sessions were conducted in groups of 4, in a classroom at the University of the Highlands & Islands. Participants were seated at individual desks and presented with an information sheet explaining the procedure for the experiment, and confirming data was anonymous. A demographics questionnaire was completed, and written consent was obtained. Participants were presented with a brief to read, that was also delivered verbally, informing them that they were about to view a distracted driving campaign film, and that they will be required to answer some questions afterwards about the emotions they experienced. Participants were reminded that they do not have to continue watching the film to the end and are free to leave the experiment at any time.

Participants in the emotion regulation condition were provided instructions for completing the distraction and reappraisal task. The task involved completing a checklist of short statements relating to procedures for avoiding distracted driving, as detailed in the materials section. Participants were informed that throughout the film, some of these statements will appear on the screen, and their task is to place a tick next to the appropriate statement on their checklist.

For the control condition, participants viewed an unedited version of the film that did not have any messages appearing on the screen. There were no instructions or tasks to complete, and participants watched the film as they would do under natural conditions.

Immediately after the film ended all participants completed the PANAS (Watson et al., 1988) to rate the emotions they experienced during the film. A copy of the de-brief was distributed to participants and also delivered verbally. Participants were thanked for their time before leaving the experiment.

Analysis

Statistical analysis was performed using the statistical

program IBM SPSS Statistics 23. Independent samples t-tests were conducted to compare the means of negative and positive emotion, between the control and emotion regulation condition. Exploratory analyses were conducted to explore the possibility of gender differences. An alpha level of .05 was used for all statistical tests, and data is presented as mean ± standard deviation.

Results

The negative emotion scores for each condition were calculated using the PANAS scale. An independent samples t-test was run to determine if there were differences in mean negative emotion scores between the control group (n = 27) and the emotion regulation group (n = 26). There were no outliers in the data as assessed by inspection of a boxplot. Negative emotion scores for each group were normally distributed, as assessed by Shapiro-Wilk's test (p > .05) and there was homogeneity of variances as assessed by Levene's test for equality of variances (p = .394). To adjust for multiple testing, the p-value is compared to a Bonferroni-corrected significance level of .05/2 = .025. As shown in Figure 2, the emotion regulation group had a lower mean negative emotion score (M = 20.23, SD = 7.96) than the control group (M = 26.37, SD = 10.13). The difference was statistically significant, $t(51) = 2.45$, p = .018, two-tailed, d = .67, suggesting the emotion regulation strategy reduced negative emotion.

Figure 2. Negative and positive emotion across control and emotion regulation conditions, measured using PANAS (Watson et al., 1988). Error bars denote one standard error around the mean.

The positive emotion scores were also calculated using the PANAS scale. An independent samples t-test was run to determine if there were differences in mean positive emotion scores between the control group (n = 27) and the emotion regulation group (n = 26). There were no outliers in the data as assessed by inspection of a boxplot. Positive emotion scores for each group were normally distributed, as assessed by Shapiro-Wilk's test (p > .05) and there was homogeneity of variances as assessed by Levene's test for equality of variances (p = .388). To adjust for multiple testing, the p-value is compared to a Bonferroni-corrected significance level of .05/2 = .025. Figure 2 shows that the control group's mean positive emotion scores were lower (M = 22.81, SD = 7.96) than the emotion regulation group mean positive emotion score (M = 27.81, SD = 6.87). This difference was statistically significant, $t(51) = -2.44$, p = .018, d = 0.67, indicating the emotion regulation strategy increased positive emotion.

Exploratory analyses were conducted to explore the possibility of gender effects. To adjust for multiple testing, the following p-values are compared to a Bonferroni-corrected significance level of .05/4 = .0125. As shown in Figure 3, there was a trend for females to score higher than males for negative emotion. However, this difference was not statistically significant in either the control condition, $t(25) = -1.79$, p = .085, or emotion regulation condition, $t(24) = -2.04$, p = .053.

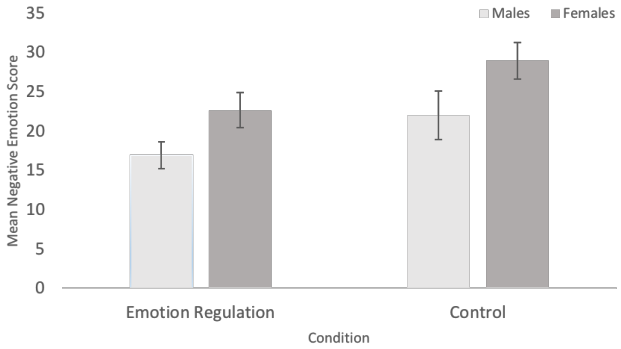

Figure 3. Mean negative emotion scores for males and females, in emotion regulation and control conditions. Negative emotion measured using PANAS (Watson et al., 1988). Error bars denote one standard error around the mean.

As shown in Figure 4, there was a similar trend for positive emotion, with females scoring higher than males. Again, this difference was not statistically significant in either the control condition, $t(25) = -.651$, p = .52 or in the emotion regulation condition,

$t(24) = -.738$, $p = .47$, suggesting that gender did not have a significant effect on the main results in this study.

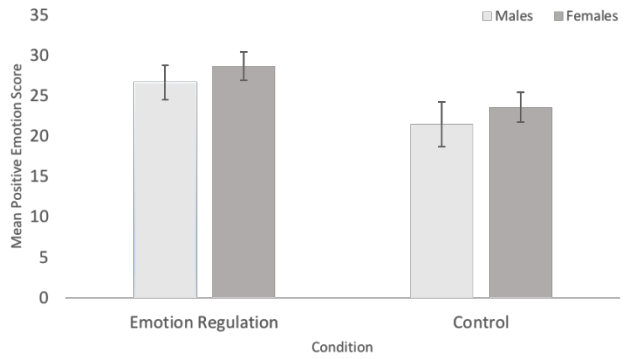

Figure 4. Mean positive emotion scores for males and females, across emotion regulation and control conditions. Positive emotion measured using PANAS (Watson et al., 1988). Error bars denote one standard error around the mean.

Discussion

The present study was conducted to investigate the effect of emotion regulation on a distracted driving campaign. Findings revealed a significant reduction in mean negative emotion for the emotion regulation condition, in comparison to the control condition, with a medium effect size. Therefore, the results provide evidence in support of the hypothesis that the emotion regulation strategies of distraction and reappraisal can reduce negative emotion during a distracted driving video. In addition, the positive emotion scores also appear to be influenced by the emotion regulation manipulation, with the emotion regulation group scoring higher on positive emotion than the control group. These findings offer theoretical support for the process model of emotion regulation (Gross, 1998), and suggest that distraction and cognitive reappraisal can be applied to a distracted driving campaign to reduce negative emotional responses to threat-appeals.

As negative emotion can have a detrimental impact on the evaluation of perceived risk and susceptibility, emotion regulation may increase the success of threat-appeal safety campaigns (Sheeran, Harris, & Epton, 2013). Distracting safety messages appearing on the screen throughout the distracted driving campaign film in the emotion regulation condition, such as 'Keep your mobile phone out of sight and out of reach' functioned to increase self-efficacy and generate neutral thoughts, diverting attention away from the emotional content of the video and modulating the generation of negative emotions. Attention was re-engaged at the semantic processing stage by means of a cognitive reappraisal task, that involved a checklist of safety messages depicting achievable strategies for avoiding distracted driving. This task was in accordance with previous research that has emphasised the importance of directly communicating a specific plan to avoid the threat, as being fundamental to increasing self-efficacy and the ensuing success of threat-appeals (Phillips et al., 2011; Wundersitz, Hutchinson, & Woolley, 2010). Therefore, the safety messages also functioned to provide direct communication regarding a specific plan that individuals can implement themselves, in order to avoid the threat of being distracted by mobile phone while driving.

Consequently, the intervention developed in this study has the potential to encourage drivers to keep their mobile phone out of reach while driving. This may increase self-efficacy by specifying a simple behaviour change strategy that can be immediately implemented with minimal effort, consistent with the EPPM (Witte, 1994), that proposes increasing self-efficacy by emphasising behaviour change strategies that are likely to be appraised as effective and achievable, increases the possibility of successful behaviour change (Carey & Sarma, 2016). Subsequently, the incorporation of emotion regulation strategies into campaigns may increase the likelihood of distracted driving campaigns being successful (Brown & Locker, 2009; Previte, Russell-Bennett, & Parkinson, 2015). However, further research is required to determine the effects of emotion regulation on driving behaviours in response to safe driving campaigns.

Limitations

This experiment was successful in recruiting a diverse sample, involving a wide age range of participants from both the general public and the university population. However, this introduced the possibility of familiarity effects confounding the results. The

experiment was conducted in a university classroom, which was a familiar environment for student and staff participants, but unfamiliar for members of the public. As emotional responses are influenced by familiarity of the environment (Winkielman & Cacioppo, 2001) this may have impacted the results. Furthermore, the laboratory environment does not encompass the variety of situational and contextual factors that influence emotions and behaviour in real-life settings.

In addition, the lack of a baseline measures creates a methodological limitation. The PANAS scale was only completed after watching the distracted driving film, reducing sensitivity to detect effects of the emotion regulation task on the outcome of emotion. Subsequently, the possibility of the observed effects between the emotion regulation and control conditions, being attributed to between-group differences of emotion at baseline cannot be ruled out. This limitation should be addressed by replication of the study with inclusion of a baseline measure, using a pre-test, post-test experimental design.

Similarly, the self-report method of measuring emotions may lack validity, and this experiment solely measured the immediate impact of a distracted driving campaign film and did not investigate any long-term effects. Future research should elucidate these concerns by investigating the impact of the novel distraction and reappraisal task developed in this study, on long-term driving behaviours. Exploiting a longitudinal mixed method experimental design and conducting follow-up interviews with participants, would clarify the implications of these findings on inducing long-term behavioural changes.

Conclusion

Many health campaigns use a threat-appeal approach by inducing fear to motivate behaviour change. However, threat-appeal frameworks may not always be the most effective in specific contexts, such as road-safety. Safe driving campaigns typically contain upsetting visual images exhibiting the consequences of risky driving, evoking negative emotions, despite empirical evidence suggesting the use of emotional images can generate a defensive response and reduce estimates of personal risk (Wundersitz et al., 2010). Subsequently, the generation of negative emotion may be counterproductive to behaviour change due to the possibility of triggering a defensive response that reduces estimations of perceived-susceptibility, closely linked to risky driving behaviours (Phillips et al., 2011).

The application of theoretical frameworks, such as the EPPM, and emotion regulation strategies in the design of safety campaigns may function to increase their effectiveness. For example, campaigns that induce high levels of self-efficacy and can be appraised as high in perceived-severity and perceived-susceptibility, may increase the likelihood of long-term behaviour change. Furthermore, in line with evidence from research on the effectiveness of road safety campaigns, perceived risk has limited influence on driving behaviours (Phillips et al., 2011), therefore threat-appeals designed to increase perceived risk by generating negative emotions in the observer, may be counter-productive to behaviour change. Conversely, evoking positive rather than negative emotions in conjunction with increasing self-efficacy, may facilitate further processing of the messages being portrayed in safe driving campaigns, and move beyond the shock tactics that create negative emotional appraisals but fail to influence positive behaviour change.

To conclude, the present study provides evidence to suggest that the emotion regulation strategies of distraction and reappraisal can be incorporated into distracted driving campaigns to reduce maladaptive negative emotions being generated by the viewers. By reducing negative emotional reactions and emphasising specific behaviour change instructions that can be achieved by all individuals with minimal effort, distracted driving campaigns may potentially empower individuals to make positive choices in their driving behaviours.

Conflicts of Interest

The author has no conflicts of interest to declare.

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