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Effects of Viewing a Road Trauma Film on Emotional and Motivational Factors

Gregory J. Boyle
University of Melbourne

Notes.

1. The documentary film was shot by Cameraman R. Rowe of GTV9 television news team, Melbourne, Australia, who personally witnessed the horrific scenes of carnage.

2. Address correspondence to Gregory J. Boyle, PhD, DSc., Bond University, Gold Coast, Queensland 4229, Australia.
Abstract

The Eight State Questionnaire (8SQ), and the Motivation Analysis Test (MAT) were administered to 58 college students before and after viewing a five-minute film segment, portraying graphic documentary scenes of automobile accident victims and part of a pathologist's autopsy of a road victim. Presentation of this high-threat stimulus induced an intense elevation in several emotional and motivational states. Most changes implied a generalised psychological disorientation and concomitant diminution in motor skills. In accord with previous evidence, the present findings suggested that fear appeals are probably ineffective in augmenting safer driving behaviors.
Generalised safety campaigns directed at increasing driver awareness have had little effect on driving behaviors, and no apparent effect on accident occurrence [Anderson, 1978; Griep, 1970; Haskins, 1970; Le Garde et al., 1971; O.E.C.D. Report, 1971; Robertson et al., 1972]. Police departments in several countries have attempted to foster responsible driver attitudes and behaviors by presenting road trauma films to interested audiences, and to road traffic offenders (such as those apprehended while driving under the influence of alcohol -- a factor in more than a third of road crash fatalities -- McDermott and Strang, [1978]. Kohn et al. [1982] found that threatening films had little effect on drinking and driving among 441 high school students. They reported that such films actually induced a more permissive attitude to impaired driving. According to Kohn et al. (p. 457), the threatening films induced a general upset involving depression, anxiety, disgust, and loss of pleasure, apart from inducing fear itself.

Fear appeals are aimed at getting the motorist so frightened that s/he will subsequently drive more carefully. According to Avery [1973, p. 16],

"... an individual could be persuaded to carry out the communicator's instructions after a sufficiently high fear-arousing communication, if the instructions were presented as being efficacious in removing anxiety..."

Fear appeals may produce a desired change in driving behaviors only if some form of direct action is conveyed in the message, provided that it does not conflict with overlearned response habits which are difficult to modify. As indicated by Griep [1970], vague threat appeals have little effectiveness in altering driving behaviors, and serve merely to provoke defense mechanisms (see Griffeth and Rogers, 1976; Gronhaug and Rostvig, 1978; Rogers and Mewborn, 1976).
Beach [1966] compared the effectiveness of high- and low-threat film segments (the high-threat segment portrayed mutilated bodies and dying, moaning road crash victims), and reported that the low-threat stimuli produced a greater shift in desired attitudes. Higbee [1969] proposed a curvilinear model to account for the fear-persuasion relationship. Threat appeals may be functional up to a certain optimal level, beyond which additional threat is dysfunctional in inducing changes in driving behaviors [see Avery, 1973, p. 22].

Intrapersonal characteristics might be expected to modify the effectiveness of fear appeals. For low intelligence drivers, the high information processing demands at some intersections may override any benefits from fear appeals. As Smith and Kirkham [1982] reported, low-intelligence drivers were more frequently involved in intersection crashes and received more speeding tickets. Kohn et al.; [1982, pp. 457-458] cited several intrapersonal characteristics which interact with the nature of threat appeals in effecting desired alterations in driving behaviors. Clearly, threat appeals should be tailored to the characteristics of the recipients [see Burnett and Oliver, 1979 Burnett and Wilkes, 1980]. Unfortunately whole target populations are usually exposed to such treatments without consideration of such modifying factors [Kohn et al., 1982].

It is essential to clearly delineate which emotional and motivational states are altered significantly by fear appeals. The present study attempts to elucidate the emotional impact of the horror film, "Knock On Any Door", produced in Australia in an attempt to overcome the cultural and temporal deficits inherent in older road trauma films. Many of the latter were produced more than a decade ago (e.g. "Mechanized Death", an Ohio Highway Safety Foundation horror film, and "Signal 30", a British film depicting mutilated, dying crash victims). A condensed five-minute segment was employed which showed graphic scenes of carnage from road accidents in Melbourne, and also part of a pathologist's autopsy on a car
crash victim. This paper reports the precise effects of the horror film segment on emotional and motivational factors.

**Method**

**Subjects**

All subjects were elementary student teachers enrolled at the I.C.E. Oakleigh campus. The sample comprised 58 students (10 male, 48 female) whose mean age was 22.60 years (S.D. = 6.87 years). Virtually all students came from a predominantly middle-class socio-economic background. Almost all were Australian born, and about 80% held a driver's licence.

**Instruments**

The two measures employed were the Eight State Questionnaire-8SQ [Curran and Cattell, 1976], and the Motivation Analysis Test-MAT [Cattell, et al., 1964]. Form A of the 8SQ (which includes measures of Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion, and Arousal) was used. Each subscale comprised 12 items which were "cycled" in order to avoid reactive inhibition and spurious contiguity effects. Response sets were minimized as items were also worded in both directions. Curran and Cattell [1976, p. 14] reported dependability coefficients ranging from 0.91 to 0.96 for immediate retest. The mean one-week retest coefficient was .36. For a state measure, high dependability and lowered stability coefficients would be expected for a reliable, but situationally-sensitive instrument. The mean concept validity coefficient was 0.72. Criterion validity evidence was summarized in Cattell and Child [1975, p. 16].

Likewise Form A of the MAT was employed. The MAT (which comprises 208 non-transparent pencil and paper items) is an objective measure of ten motivational factors,
including biologically based drives (Mating, Assertiveness, Fear, Narcism, Pugnacity) and culturally derived drives (Self-Concept, Superego, Career, Sweetheart-Spouse, Home-Parental) respectively. Mazer [1972, p. 269] reported that the main advantage of the MAT items is that the psychological context is not readily discernible. Cattell et al. [1964, p. 5] reported a mean dependability coefficient of 0.66. The mean stability coefficient (for a five-week retest interval) was 0.51. The mean concept validity coefficient was 0.65. Concrete validity evidence was provided by Kline and Grindley (1974), and by Birkett and Cattell [1978]. While the MAT took about an hour to administer, the 8SQ took only 20 minutes.

**Design and Procedure**

The pretest-posttest design used [see Cook and Campbell, 1979] enabled the students to serve as their own controls. The film treatment was interpolated between the two measurement occasions with the 8SQ and MAT (counterbalanced on the second occasion to avoid position effects).

**Results and Discussion**

Subscale scores were analysed using a repeated-measures multivariate ANOVA [via SPSS-Nie et al., 1975]. The ten MAT subscales were analysed in terms of both the integrated (I), and unintegrated (U) components. For the total 28 variables, the multivariate statistic was highly significant (Wilks $\lambda_{28,30} = 0.21$, $p < 0.0002$). Hence univariate ANOVAs for each variable were justified. As shown in Table 1, seven of the eight emotional states, and six of the MAT factors were altered significantly. The greatest changes occurred for the subscales of Anxiety, Depression, Regression, and Guilt. Both components of the MAT Fear subscale also exhibited a high elevation in mean score. Significant changes for the subscales of Stress, Extraversion, I-Narcism, and I-Superego were obtained also. Significant, but less extreme
shifts in mean scores occurred for the Fatigue state, and for the Career drive (at the unintegrated, unconscious level).

Elevation in the mean Anxiety score is important, as heightened anxiety is dysfunctional for skilled motor performance. Also as Curran and Cattell [1976, p. 5] indicated, depressive mood interferes with cognitive processing abilities [see, Smith and Kirkham, 1982, regarding the accident proneness of low-intelligence drivers]. Moreover, Curran and Cattell [p. 5] stated that the behavioral correlates of heightened regression include, "lower ratio of accuracy to speed, lower accuracy in spatial judgment, poorer two-hand coordination", which clearly suggest a dysfunctional influence on safe driving behaviors. The one shred of hope in all these negative findings is the heightened MAT Fear scores. Cattell et al. [1964, p. 3] defined Fear as, "Level of alertness to external dangers". Possibly subjects might be impelled to re-examine their driving behaviors after viewing the horrific film segment. The behavioral tendency to perceive objects as threatening when under heightened stress [Curran and Cattell, 1976, p. 5] might facilitate such re-examination. The highly significant increases in mean scores for Guilt, and I-Superego suggests that subjects might take a more responsible attitude towards driving, although corresponding behavioral changes are not guaranteed.

The students probably were unable to resolve their conflict in the time allowed for the experiment. A debriefing session immediately following the experiment allowed students to regain their composure and to discuss specific avoidance behaviors which they could employ in particular driving situations.
Table 1
Means, standard deviations and significance level for each variable (N = 58)

<table>
<thead>
<tr>
<th></th>
<th>Occasion One</th>
<th>Occasion Two</th>
<th>(F_{(1,57)})</th>
<th>(p) less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>anxiety</td>
<td>17.02</td>
<td>22.52</td>
<td>39.36</td>
<td>0.00001</td>
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<tr>
<td>Stress</td>
<td>19.38</td>
<td>21.12</td>
<td>10.54</td>
<td>0.002</td>
</tr>
<tr>
<td>Depression</td>
<td>18.16</td>
<td>22.21</td>
<td>25.35</td>
<td>0.00001</td>
</tr>
<tr>
<td>Regression</td>
<td>17.07</td>
<td>20.10</td>
<td>21.65</td>
<td>0.00002</td>
</tr>
<tr>
<td>Fatigue</td>
<td>19.67</td>
<td>21.19</td>
<td>4.10</td>
<td>0.05</td>
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<tr>
<td>Guilt</td>
<td>13.34</td>
<td>17.00</td>
<td>25.84</td>
<td>0.00001</td>
</tr>
<tr>
<td>Extraversion</td>
<td>14.07</td>
<td>11.97</td>
<td>10.08</td>
<td>0.002</td>
</tr>
<tr>
<td>Arousal</td>
<td>15.53</td>
<td>14.57</td>
<td>2.25</td>
<td>n.s.</td>
</tr>
<tr>
<td>WIT U:Career</td>
<td>8.90</td>
<td>8.4</td>
<td>4.21</td>
<td>0.04</td>
</tr>
<tr>
<td>I-Career</td>
<td>6.14</td>
<td>6.21</td>
<td>0.13</td>
<td>n.s.</td>
</tr>
<tr>
<td>U-Home</td>
<td>12.72</td>
<td>12.57</td>
<td>0.41</td>
<td>n.s.</td>
</tr>
<tr>
<td>I-Home</td>
<td>6.41</td>
<td>6.48</td>
<td>0.13</td>
<td>n.s.</td>
</tr>
<tr>
<td>U-Fear</td>
<td>7.97</td>
<td>9.57</td>
<td>30.59</td>
<td>0.00001</td>
</tr>
<tr>
<td>I-Fear</td>
<td>4.57</td>
<td>5.22</td>
<td>16.29</td>
<td>0.0002</td>
</tr>
<tr>
<td>U-Narcism</td>
<td>9.33</td>
<td>1.03</td>
<td>1.82</td>
<td>n.s.</td>
</tr>
<tr>
<td>I-Narcism</td>
<td>5.76</td>
<td>5.38</td>
<td>5.43</td>
<td>0.02</td>
</tr>
<tr>
<td>U-Superego</td>
<td>21.72</td>
<td>22.33</td>
<td>1.80</td>
<td>n.s.</td>
</tr>
<tr>
<td>I-Superego</td>
<td>12.41</td>
<td>13.29</td>
<td>6.59</td>
<td>0.01</td>
</tr>
<tr>
<td>U-Self-Sentiment</td>
<td>37.62</td>
<td>37.21</td>
<td>0.47</td>
<td>n.s.</td>
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<tr>
<td>I-Self-Sentiment</td>
<td>18.66</td>
<td>19.76</td>
<td>0.07</td>
<td>n.s.</td>
</tr>
<tr>
<td>U-Mating</td>
<td>12.31</td>
<td>11.55</td>
<td>6.59</td>
<td>0.01</td>
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<td>I-Mating</td>
<td>4.67</td>
<td>4.45</td>
<td>1.46</td>
<td>n.s.</td>
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<tr>
<td>U-Pugnacity</td>
<td>8.00</td>
<td>7.93</td>
<td>0.06</td>
<td>n.s.</td>
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<tr>
<td>I-Pugnacity</td>
<td>4.14</td>
<td>3.98</td>
<td>0.60</td>
<td>n.s.</td>
</tr>
<tr>
<td>U-Assertiveness</td>
<td>9.83</td>
<td>9.62</td>
<td>0.51</td>
<td>n.s.</td>
</tr>
<tr>
<td>I-Assertiveness</td>
<td>3.62</td>
<td>3.52</td>
<td>0.36</td>
<td>n.s.</td>
</tr>
<tr>
<td>U-Sweetheart</td>
<td>8.19</td>
<td>7.88</td>
<td>1.73</td>
<td>n.s.</td>
</tr>
<tr>
<td>I-Sweetheart</td>
<td>7.90</td>
<td>7.67</td>
<td>0.89</td>
<td>n.s.</td>
</tr>
</tbody>
</table>

Notes.
1. All scores are raw scores.
2. U = unintegrated component; I = integrated component (see Cattell et al., 1964, p. 3).
The present findings support those of Kohn et al. [1982], but provide more precise quantification of the diverse emotional impact of fear appeals. The highly significant changes in emotional and motivational states were probably not attributable merely to a test-retest effect. Nevertheless, habituation to shock material might be expected to occur after a few repetitions of the stressful stimulus, which being psychologically disturbing, is resolved by defences such as denial or repression of the horror associated with road accidents. Kohn et al. had noted that depressive mood may evoke a reactance-like counter motivation against fear appeals. Given the extreme elevation in the 8SQ Depression subscale, it seems likely that this situation applied also in the present experimental context.

Acknowledgement

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References


