

Use of Fear Appeal in Work Safety Messages: An Experimental Study*

İş Güvenliği İletişim Mesajlarında Korku Çekiciliğinin Kullanımı: Deneysel Bir Çalışma

Selin TÜRKEL** 
Sema MİSCİ KİP*** 
Feyza Elif YASDIMAN**** 

Abstract

Persuasive communication messages are important in order to inform and motivate workers and encourage them to take work safety precautions. Fear appeals are broadly used to persuade individuals in public health and work safety communication messages. This experimental study compares attitudes, perceived ethicality, fear emotions, and behavioral intention of workers when exposed to a stimulus containing the threat of physical injury message, compared to a stimulus without such a message. Findings reveal statistically significant differences in terms of attitude toward the message and perceived ethicality when comparing two treatments. However, no significant differences emerged in fear emotions and behavioral intention. Therefore, associations on work safety, governmental organizations, social marketers, and occupational safety specialists should be cautious about the effectiveness of threat of injury messages.

Keywords: Fear Appeal, Work Safety, Attitudes, Perceived Ethicality, Fear Emotions, Behavioral Intention

* This manuscript is adapted from the master thesis of Feyza Elif Yadsıman, entitled The Use of Fear Appeal in Work Safety: An Experimental Study on Work Safety Posters.

** Assoc. Prof. Dr. Izmir University of Economics, Faculty of Communication, Department of Public Relations and Advertising, İzmir, Turkey, E-Mail: selin.turkel@ieu.edu.tr

*** Assoc. Prof. Dr. Izmir University of Economics, Faculty of Communication, Department of Public Relations and Advertising, İzmir, Turkey, E-Mail: sema.misci@ieu.edu.tr

**** Post-graduate student of Izmir University of Economics, Graduate School of Social Sciences, Marketing Communications and Public Relations, İzmir, Turkey, E-Mail: yasdımanfeyza@gmail.com

Öz

İşçileri iş güvenliği hakkında bilgilendirmek ve gereken önlemleri almaya teşvik etmek için ikna edici iletişim mesajları önem taşımaktadır. Korku çekiciliği, halk sağlığı ve iş güvenliği iletişim mesajlarıyla bireyleri ikna etmek için geniş olarak kullanılmaktadır. Bu deneysel çalışmada, işçilerin yaralanma tehdidi içeren ve içermeyen mesajlara maruz kaldıklarındaki tutumları, etik algıları, korku duyguları ve davranışsal niyetleri karşılaştırılmaktadır. Araştırma sonuçlarına göre, yaralanma tehdidi içeren mesaja maruz kalan grupla, yaralanma tehdidi içermeyen mesaja maruz kalan grup arasında mesaja yönelik tutumlar ve etik algıları açılarından istatistiksel olarak fark vardır. Buna karşılık, gruplar arasında korku duyguları ve davranışsal niyet açılarından anlamlı bir farklılık bulunmamıştır. Tüm bu nedenlerden dolayı, iş güvenliği üzerine çalışan dernekler, kamu kurumları, pazarlama uzmanları ve iş güvenliği uzmanları yaralanma tehdidi içeren mesajlar kullanımında dikkatli olmalıdır.

Anahtar Kelimeler: Korku Çekiciliği, İş Güvenliği, Tutumlar, Algılanan Etiklik, Korku Duyguları, Davranışsal Niyet

Introduction

Work accidents are increasingly recognized as a serious, worldwide public health concern, which create serious problems such as occupational injuries and death worldwide (International Labour Organization, 2019). According to the data provided by Social Security Institution of Turkey, the number of insured persons who had occupational injuries in 2017 was 359.653 (SGK, 2017). Turkish data reveal that frequency rate for work related accidents increased from 5.88% in 2013 to 9.94% in 2017, whereas fatal work accidents of insured people from 744 to 1.633 for the same period (SGK, 2017). These data do not encompass all employees in Turkey, since informal workers are excluded from the official surveillance system (Türkkan and Pala, 2016, p. 457).

According to the meta-analysis of Michael S. Christian, Jill C. Bradley, J. Craig Wallace, and Michael J. Burke (2009), the more workers are informed and motivated about safety, the better they perform (p. 1103). Therefore, persuasive communication messages are important to inform workers and motivate them to take work safety precautions. “Fear appeals” are used in order to raise fear levels and persuade people to behave in the desired way (Basil, Basil, Deshpande, and Lavack, 2013, p. 29). Several studies have shown that adoption of fear appeal can increase the interest in and persuasiveness of an ad (Higbee, 1969, p. 441; Hyman and Tansey, p. 105 1990; King and Reid, 1990, p. 159). Fear appeals are utilized in many communication efforts. Michael Baker, Peter Graham, Debra Harker, and Micheal Harker (1998) note that the use of fear is widely used in health and safety advertising (p. 497). James B. Stiff and Paul A. Mongeau (2003) highlight that fear appeals are frequently used in prevention and safety campaigns (p. 147). Some health and safety campaigns depend on “...the assumption that by vividly demonstrating negative and life-endangering consequences of risk behaviors, people will be motivated to reduce their current risk behavior and adopt safer alternative behaviors” (Ruiter, Kessels, Peters and Kok, 2014, p. 63).

Fear appeals in work safety are investigated in studies by Catharina Alwall Svennefelt, Erik Hunter and Peter Lundqvist (2018) and Micheal Basil et al. (2013). By employing extended parallel processing model (EPPM), Catharina Alwall Svennefelt et al. (2018) argue that fear appeals have

been misapplied in farm intervention programs of Sweden. Fear appeals with threat of injury and death content were found to be utilized in farm interventions to stimulate individuals to take safety measures; however, this does not fit with the desired action (p. 355). Micheal Basil et al. (2013) reveal the predictive power of EPPM, and emphasized the risk that using visual threats might lead to inadequate adaptation of targeted behavior (p. 30).

Theoretical approaches have been developed in the literature regarding fear appeals, namely, Drive Theories, The Parallel Response Model, Protection Motivation Theory (PMT), and EPPM. PMT and EPPM are widely adopted while elaborating on the effectiveness of fear appeals (Ruiter et al., 2014). As suggested by Ronald W. Rogers (1983), PMT has two appraisal processes: *threat appraisal* and *coping appraisal* (p. 167). Threat severity and susceptibility, which have effects on positive adaptive behavior (Floyd, Prentice-Dunn and Rogers, 2000, p. 407), are assessed within threat appraisal, whereas the effectiveness of potential responses and self-efficacy are evaluated within coping appraisal (Rogers, 1983, p. 158). James E. Maddux and Ronald W. Rogers (1983) state that “cognitive processes mediate the persuasive impact of a fear appeal by arousing protection motivation, an intervening variable that arouses, sustains, and directs activity to protect the self from danger” (p. 470). Ronald W. Rogers (1983) adds that the intention to appropriate the communicator’s advice is a function of the evoked protection motivation (p. 158). Ronald W. Rogers and Steven Prentice-Dunn (1997) state that PMT offers a clarification on attitude and behavior change when individuals face threat messages (p. 117).

The most recent theoretical approach in fear appeal research, EPPM, is offered by Kim Witte (1992, p. 329). Accordingly, success or failure of fear appeals are closely associated with cognitive and emotional mechanisms; success, with cognitions through danger control processes, and failure, with emotions via fear control processes (Witte and Roberto, 2009, p. 586). The achievement of danger control process is the aim (Witte, 1992, p. 333); whereas fear control process is one’s belief in the inability or ineffectiveness of the desired response. Individuals appraise the constituents of a message according to their previous knowledge, culture, and personality traits. As stated in EPPM, individual differences such as one’s general philosophy of life, characteristic variables (e.g., anxiety), or previous knowledge have no direct affect on results (e.g. intents, defensive avoidance, reactance, etc.) (Witte, 1998, p. 431). It is crucial to state that the same fear appeal may create diversified perceptions at different individuals.

Basil and Witte (2012) underline that the general aim of the EPPM message design is to motivate message recipients to engage in the danger control process (p. 47). Perceptions of efficacy should be more powerful than perceptions of threat (Witte, Meyer, and Martel, 2001, p. 74). Efficacy is another significant component of the EPPM; efficacy as a message characteristic contains response efficacy and self-efficacy (Stern, 2018, p. 50). Kim Witte points out that perceived response efficacy is beliefs or cognitions regarding the effectiveness of a recommended response in preventing a threat (1994, p. 114). Perceived self-efficacy is a person’s beliefs regarding his or her ability to accomplish the proposed response in order to prevent the threat (Stern, 2018, pp. 50-51). Response efficacy and self-efficacy are the predictors of intended behavior (Gutteling and Wiegman, 1996, p. 99).

Literature Review and Hypotheses Development

According to literature findings on fear appeal, contrasting results are observed in terms of its effectiveness. In their meta-analysis, Kim Witte and Mike Allen (2000) propose that strong fear appeals are more persuasive (p. 591). Contrastingly, Kaylene C. Williams (2012) states that high tension might prompt individuals to avoid the message, and so strongly depicted fear appeals may become less effective (p. 4).

Fear appeal studies have mostly concentrated on public health issues, such as avoidance of AIDS, smoking prevention, dental hygiene, road-safety, and cancer prevention. However, these results do not specifically address work safety. To the best knowledge of authors, the few studies that touch upon work safety and fear appeals are related with farm work safety intervention (Svennefelt, Hunter and Lundqvist, 2018), construction industry (Basil et al., 2013), and public service announcements (Arpa, 2018).

According to some metaanalyses, most studies on fear appeal have concentrated on attitudes (Boster and Mongeau, 1984, p. 334; Witte and Allen, 2000, p. 591), which were found to have a direct relation with fear appeal (Nabi, Roskos-Ewoldsen and Carpentier, 2008, p. 192). On one hand, a low-fear message can create positive attitudes (Witte, 1993, p. 149); on the other hand, there are studies which reveal high-fear messages leading to affirmative responses (De Hoog, Stroebe and De Wit, 2007, p. 258). To better understand how fear-inducing messages affect worker attitudes toward the message of work safety in particular, we posit below hypotheses:

H1: Workers' responses will differ on attitude towards the message when exposed to a stimulus containing a threat of an injury message compared to one without any threat of an injury message.

There are concerns in the existing fear appeal literature regarding perceived ethicality. Few studies examined the effect of threatening messages on perceived ethicality for social causes as in the study of Damien Arthur and Pascale Quester (2003). Fear-inducing visuals in advertising might be criticized as irresponsible, unethical, and manipulative (Williams, 2011, p. 1). Robin L Snipes, Michael S. LaTour and Sarah J. Bliss (1999) argue that high-level fear appeal messages perform well and are considered to be ethical (p. 273). In order to address the role of perceived ethicality, below hypothesis is proposed:

H2: Workers' responses will differ on perceived ethicality when exposed to a stimulus containing a threat of an injury message compared to one without any threat of an injury message.

Affective responses and emotional theme appear to be much more significant than cognitive responses in terms of estimating attitude towards the ad (Panda, Panda and Mishra, 2013, p. 10). Marvin E. Goldberg and Gerald J. Gorn's study (1987) demonstrate that emotional messages usually create more positive reactions than informational advertisements (p. 387). Gerald J. Tellis (2004) states that emotional appeals motivate people more immediately than any other appeal type (p. 23). Specifically, many studies demonstrate negative emotional appeals are much more effective than positive ones (Padhy, 2011, p. 51). The emotion of fear is considered as a multi-dimensional construct, subsuming the emotions of being scared, afraid, panicky, worried,

nervous, and tense (Laros and Steenkamp, 2005, p. 1441). In order to understand the difference responses to fear emotions in work safety, below hypotheses are predicted:

H3: Workers' responses will differ on fear emotions when exposed to a stimulus containing a threat of an injury message compared to one without any threat of an injury message.

Responses on behavioral intention reveal how influential a message is on workers' preventive measures. Fear appeal effect on behavioral intention highlight the persuasive power of the message (Rogers, 1983, p. 169; Tanner, Day and Crask, 1989, p. 267). Witte and Allen (2000) state that when a threat is seriously and relevantly disclosed in the message, individuals are more likely to take action in order to cope with fear (p. 594). According to the work safety literature, safety behavior involves safety performance, which comprises safety compliance and safety participation as stated by Andrew Neal, Mark A. Griffin and Peter M. Hart (2000, p. 101). Safety compliance is related to obeying safety rules and performing tasks safely, while safety participation is voluntary and related to supporting a safety program to boost safety performance in the workplace (Clarke, 2006, p.316). Behavioral intention predicts behaviours (Ajzen, 1991, p.184). Thus workers' behavioral patterns are investigated in Jane E. Mullen and E. Kevin Kelloway's (2009) study to anticipate their behaviours (p. 256). Based on these points, we propose below hypothesis:

H4: Workers' responses will differ on behavioral intention in work safety when exposed to a stimulus containing a threat of an injury message, compared to one without.

Methodology

The objective of this study is to compare the effect of *threat of physical injury* messages on attitudes, perceived ethicality, fear emotions and behavioral intention of workers in work safety. Two different groups of workers were exposed to experimental stimuli and with threat of physical injury, and one without.

WorkSafe Victoria's print advertisement was selected for this experimental study. WorkSafe Victoria, occupational health and safety arm of the regulator Victorian WorkCover Authority (VWA), has a pioneering role in both developing and applying health and safety at Victorian workplaces. Worksafe Victoria in Australia is known for its encouragement of young workers to speak up at the workplace before it is too late. In line with the purpose of the research, a graphic designer adapted the original WorkSafe Victoria's print advertisement, and two posters were designed; one having a threat of injury and one without (Figure 2-3). Copy of the stimulus was adapted from Aksel Occupational Health and Safety Inc. (Aksel İSG A.Ş.)'s Facebook post. As illustrated in the Figures 2-3, the message is as follows:

“Before It's Too Late! In Turkey, 661 work accidents occur every day. Don't let one of them be you. Take precautions” (Association of Work Safety Initiatives).

To avoid names and logos, associated with positive or negative feelings in participants, a pretest was conducted to choose a name and logo for the hypothetical association. 87 participants

evaluated nine logotypes for a fictive association operating in İzmir, the city where the research takes place. One-sample Kolmogorov-Smirnov Test was utilized to select the logotype. According to the results, İş Güvenliği Çalışmaları Derneği (İGÇD) (0,158), having the lowest absolute value, was used in the stimulus.

Prior to experimental data analysis, Chi-Square Test of Independence was conducted to ensure fatalism tendency (predetermination and personal control) and self-efficacy were matched among participants. The aim was to balance the level of fatalism tendency and self-efficacy for both groups. Regression tests revealed that fatalism tendency and self-efficacy were potential confounding factors. Fatalism tendency affects behavioral intention with 4.8% ($p=0.010$), and self-efficacy affects behavioral intention with 14.9% ($p=0.000$). The belief in fatalism concerning work accidents is based on the notion that work accidents cannot be prevented, even if all measures are taken for work safety, causing employees with fatalistic beliefs to regard taking measure as ineffective (Üngüren, 2018, p. 44). Various studies state that work accidents happen more frequently in firms where workers have higher levels of fatalistic beliefs about work accidents (Salminen, 1992, p. 1195; Patwary, Sarker and O'Hare, 2012, p. 76). Another factor that could cause errors in the study was self-efficacy. As self-efficacy positively effects behavioral intention (Snipes, LaTour and Bliss, 1999, p. 281), its impact on experimental treatment was controlled.

Convenience sampling was used from among blue-collar workers in industrial areas in İzmir (i.e. districts of Bornova, Karabağlar, Gazimemir and such). The sample size was determined by utilizing the formula of Lusk and Shogren (2007), resulting in a total of 300 participants (p. 56). After matching fatalism tendency, self-efficacy, occupational experience, and the incident of work accidents between groups, 220 respondents were included in the final sample, which comprised of male workers aged between 20 and 70. Most participants were high school graduates (42%), and secondary school graduates (23%) from middle (51%) and lower-middle (18%) income levels. Among the subjects, 52% of the sample had near miss incident at work, and 40% had a work related accident.

A pilot study was conducted to analyze items, assess internal consistency, and stability of measures. Scale constructs for this study were obtained and adapted from prior studies in accordance with the research aim. For predetermination and personal control in fatalism tendency, the scale from Alim Kaya and Binaz Bozkur's (2015) study was employed with seven-point Likert scale. Self efficacy (single item: "I feel very confident in my ability to take precautions for work safety"), attitude towards the message (positive/negative, interesting/boring, pleasant/unpleasant, pleasing/annoying and useful/useless), and perceived ethicality (fair/unfair, culturally acceptable/unacceptable, morally right/wrong, not/in the best interest of the worker, not/acceptable even if it will lead to reduced number of working accidents) were adapted from Simon Manyiwa and Ross Brennan (2012) with equal-interval semantic differential scale. Similarly, fear emotions (scared, afraid, panicky, worried, nervous, tense) were measured with itemized rating scale (i.e. Laros and Steenkamp, 2005, p.1441). Fear emotions were rated on a seven-point scale, ranging from I feel this emotion not at all (1) to I feel this emotion very strongly (7). Behavioral intentions were measured Salih Dursun's (2011) adaptation of Neal, Griffin and Hart's (2000) original scale.

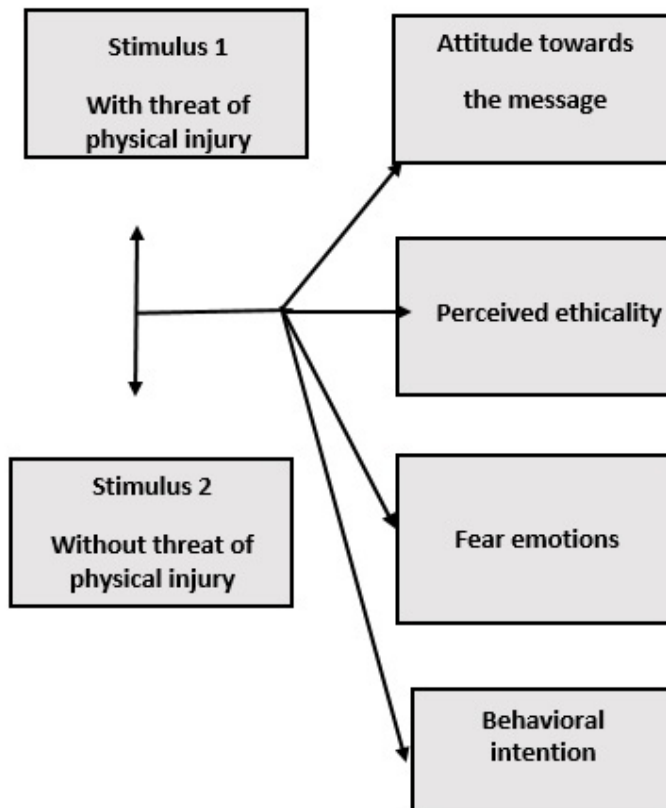
Manipulation check was conducted on both stimuli; revealing that the two experimental conditions varied in terms of amount of threat of injury. Reliability and factor analyses were utilized for validation in the experimental phase. Reliability of the scales are as follows:

Table 1. Scale Reliability

Scales	Cronbach Alfa	Number of Items
Fatalism tendency		
Predetermination	0,832	8
Personal Control	0,773	6
Attitude towards the message	0,722	5
Perceived ethicality	0,864	5
Fear emotions	0,852	6
Behavioral intention	0,940	6

To visualize the research design, the below model is provided:

Figure 1. The Research Model



Because of the data being non-normally distributed, nonparametric tests were used for all statistical analyses. Summed composite scores were created for scales of attitude towards the message, perceived ethicality, fear emotions, and behavioral intention. Mann-Whitney, a rank order test to examine hypotheses (Sheskin, 2020, p. 531), is conducted to test for differences between two groups exposed to stimuli with threat of injury and without threat of injury ($\alpha=0.01$).

Findings

Hypotheses tests indicated significant ($p < 0.01$) attitudinal and perceived ethicality differences between the groups of workers exposed to different stimuli. Attitudes toward stimulus 2 are more positive than stimulus 1. Workers find stimulus 2 more ethical. There are no significant differences between the two stimuli in terms of fear-related emotions and behavioral intention. Mann-Whitney test results are revealed in Table 2.

Table 2. Hypotheses Tests' Results

Hypotheses	Stimulus 1 with threat of injury	Stimulus 2 without threat of injury			
	Mean Rank (MR)	Mean Rank (MR)	Significance (p value)	M-Whitney U	Z
H1: Attitude toward the fear appeal message	91,59	123,76	,000	3951,000	-3,813
H2: Perceived ethicality	97,37	119,56	,008	4577,000	-2,648
H3: Fear emotions	116,35	100,20	,058	4956,000	-1,899
H4: Behavioral intention	101,18	117,34	,053	5004,500	-1,935

Discussion and Conclusion

Although stronger fear appeals led to more positive responses in several studies (see LaTour and Tanner, 2003, p. 379), in this study respondents held more favorable attitudes toward the message without threat of injury than did subjects assigned to threat condition. Attitude toward the message was more positive in the group exposed to stimulus without threat of injury stimulus. This finding might be related to utilizing a loss image. According to Alexander J. Rothman, Roger D. Bartels, John Wlaschin and Peter Salovey (2006), gain appeals for health messages referring to benefits of adopting the behavior are more persuasive in messages intended to promote prevention behaviours (p. 202). In contrast, loss appeals referring to the costs arising from failing to take action are preferable in illness detecting behaviours.

Individuals exposed to fear appeal messages judge the ethicality and acceptability of the messages according to their social background (Ferrell and Gresham, 1985, p. 93) and past experiences (Fraedrich and Ferrell, 1992, p. 247). As half of the workers participating in this study had experienced a near miss incident, they might have already constructed a meaning of health and safety. Less surprising is the finding that respondents consider stimulus 1 unethical, because they find it more annoying than

stimulus 2 (MR1=92,02, MR2=129,52, $p=,000$). Evidenced by Daniel Belanche (2019), there is a link between high level of annoyance and unethical practice (p. 685). Findings on the perceived ethicality also support Kaylene C. Williams' (2011, p. 18) and Damien Arthur and Pascale Quester's (2003, p. 12) argument that visuals with threat of injury are deemed less ethical than visuals without threat of injury.

As Fleur J.M. Laros and Jan-Benedict E.M. Steenkamp (2005, p. 1441), Ayla Ozhan Dedeoğlu and Keti Ventura (2017) state, fear emotions are complex and have distinct emotional nuances such as being scared, afraid, panicky, worried, nervous, and tense (p. 249). In this study, no significant differences were observed between stimulus 1 and stimulus 2 in terms of fear emotions. This finding is in line with the finding of Aybige Demirci Senkal and Cagla P. Utkutug Bozoklu's (2014) study on fear appeal intensity of visual cigarette warnings among Turkish young adults. Similarly, in the stated study, there was no significant difference in affective responses between warnings of varying levels of fear intensity (p. 167). In our study, although respondents exposed to the stimulus with threat of injury were more scared (MR1=120,51, MR2=97,65, $p=,006$), total emotional responses are not significantly affected. Although yet to be confirmed, consistency of findings among Turkish studies might be explained by cultural factors (Chung and Ahn, 2013). As evidenced in the study of Michel Laroche, Roy Toffoli, Quihong Zhang, and Pons Frank (2001), physical threat ads are more effective on Anglos compared to Chinese, due to cultural differences regarding individuality (p. 297).

Robin Higie Coulter, June Cotte and Melissa Lunt Moore (1999) propose that annoyance can encourage intended behavior (p. 288). Although respondents found stimulus 1 annoying, this did not lead to any difference in terms of behavioral intention. Robert A. C. Ruiter et al. (2014) suggest that awareness of life-endangering consequences of risk behaviors encourage people to lessen their risk behavior, and adopt different, safer behaviors (p. 63). However, while stimulus 1 included life-endangering consequences of risk behaviors in work safety, it failed to prompt the respondent workers to take precautions.

Witte and Allen (2000) state that messages inducing high levels of threat are more convincing than low-threat messages (p. 594). Yet, findings of this study provide support for the argument of Svennefelt, Hunter, and Lundqvist (2018), that threat of injury is not effective in motivating workers toward desired behavior. Even though meta-analysis of Melanie B. Tannenbaum et al. (2015) reveal empirical evidence relating to effectiveness of fear appeals in motivating intended behavior, the findings of current study show opposite results. This might stem from utilizing loss-framed persuasive message for prevention behavior in the stimulus. Daniel J. O'keefe and Jacob D. Jensen (2006) suggest that gain-framed messages are more persuasive, for disease prevention behaviours in health communication campaigns (p. 1). An alternative explanation relevant to the current study, relates to the tendency of males to engage in defensive self-justification, leading to weak behavioral intention, as shown in the study of Charles Goldenbeld, Divera Twisk and Sjoerd Houwing (2008, p. 219).

Our study contributes to the work safety and fear appeal literature, which has been underinvestigated to the best knowledge of authors. Results of this experimental research

suggest that threat of injury messages aimed to ensure workers' safety may in fact be considered inappropriate. Associations on work safety, governmental organizations, social marketers, and occupational safety specialists should be cautious about using threat of injury messages, which may be perceived unethical, annoying, scary; therefore, unable to arouse behavioral intentions.

Limitations and Further Research

The study is limited to blue-collar male workers in İzmir. As Tannenbaum (2015) asserts different effects of fear appeal on males and females, future studies should also include female workers (p. 41). The study relies on a convenience sample, conceivably not representative of the general worker population. Another limitation of the study is employing self-reports of behavior for data collection. While respondents self-report their behavior through attitude scales, they may tend to give socially desirable responses (Van de Mortel, 2008, p. 46). To eliminate this limitation in further studies, accident rate changes can be observed in a longitudinal experimental study.

Researchers undertaking the subjects of fear appeal and work safety can investigate from other forms of communication, such as video, and perform repeated exposures. Prefrontal brain activities can be observed to understand which parts of the brain are stimulated when viewing threat of injury messages. A comparison of workers exhibiting different cultural traits and fatalistic tendencies can be conducted in future studies to enhance acquired knowledge on attitudes, perceived ethicality, fear emotion and behavioral intention. Qualitative studies can help uncover workers' motivations regarding their avoidance of messages featuring physical threat of injury.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Alwall Svennefelt, C., Hunter, E., and Lundqvist, P. (2018). Evaluating the Swedish approach to motivating improved work safety conditions on farms: Insights from fear appeals and the extended parallel processing model. *Journal of Agromedicine*, 23(4), 355-373.
- Arpa, M. (2018). İş güvenliğini konu alan kamu spotu reklamlarında korku çekiciliği kavramının kullanılması. *Uluslararası Sosyal Bilimler Dergisi*, 1(2), 105-115.
- Arthur, D. and Quester, P. (2003). The ethicality of using fear for social advertising. *Australasian Marketing Journal (AMJ)*, 11(1), 12-27.
- Baker, M., Graham, P., Harker, D., and Harker, M. (1998). *Marketing: Managerial foundations*. Macmillan Education AU.
- Basil, M., Basil, D., Deshpande, S., and Lavack, A. M. (2013). Applying the extended parallel process model to workplace safety messages. *Health Communication*, 28(1), 29-39.
- Basil, M. and K. Witte. (2012). Health risk message design using the extended parallel process model, in Cho, H. (ed.) *Health communication message design: Theory and practice* (pp. 41-58). USA: Sage Publications.
- Belanche, D. (2019). Ethical limits to the intrusiveness of online advertising formats: A critical review of Better Ads Standards. *Journal of Marketing Communications*, 25(7), 685-701.

- Boster, F. J. and Mongeau, P. (1984). Fear-arousing persuasive messages. *Annals of the International Communication Association*, 8(1), 330-375.
- Christian, M. S., Bradley, J. C., Wallace, J. C., and Burke, M. J. (2009). Workplace safety: a meta-analysis of the roles of person and situation factors. *Journal of Applied Psychology*, 94(5), 1103.
- Chung, H. and Ahn, E. (2013). The effects of fear appeal: A moderating role of culture and message type. *Journal of Promotion Management*, 19(4), 452-469.
- Clarke, S. (2006). The relationship between safety climate and safety performance: a meta-analytic review. *Journal of Occupational Health Psychology*, 11(4), 315.
- Coulter, R. H., Cotte, J., and Moore, M. L. (1999). Believe it or not: Persuasion, manipulation and credibility of guilt appeals. In Arnould, E. J. and Scott, L. M. (Ed.) *NA – ACR North American Advances* 26 (pp. 288-294). Provo, UT: Association for Consumer Research.
- Dedeoğlu, A. and Ventura K. (2017). Consumer responses to swine flu (H1N1) threat and fear arousing communications: The case of Turkey. In Campbell, C. L. (Ed.) *The customer is not always right? Marketing orientations in a dynamic business world. Developments in marketing science: Proceedings of the Academy of Marketing Science* (pp. 249-259). Cham: Springer.
- De Hoog, N., Stroebe, W., and De Wit, J. B. (2007). The impact of vulnerability to and severity of a health risk on processing and acceptance of fear-arousing communications: A meta-analysis. *Review of General Psychology*, 11(3), 258-285.
- Dursun, S. (2011). *Güvenlik kültürünün güvenlik performansı üzerine etkisine yönelik bir uygulama*. PhD Thesis. Uludağ University.
- Ferrell, O. C. and Gresham, L. G. (1985). A contingency framework for understanding ethical decision making in marketing. *Journal of Marketing*, 49(3), 87-96.
- Floyd, D. L., Prentice-Dunn, S., and Rogers, R. W. (2000). A meta-analysis of research on protection motivation theory. *Journal of Applied Social Psychology*, 30(2), 407-429.
- Fraedrich, J. and Ferrell, O. C. (1992). Cognitive consistency of marketing managers in ethical situations. *Journal of the Academy of Marketing Science*, 20(3), 245-252.
- Goldberg, M. E. and Gorn, G. J. (1987). Happy and sad TV programs: How they affect reactions to commercials. *Journal of Consumer Research*, 14(3), 387-403.
- Goldenbeld, C., Twisk, D., and Houwing, S. (2008). Effects of persuasive communication and group discussions on acceptability of anti-speeding policies for male and female drivers. *Transportation Research Part F: Traffic Psychology and Behaviour*, 11(3), 207-220.
- Gutteling, J. M. and Wiegman, O. (1996). Risk communication. In *Exploring Risk Communication*, Springer, Dordrecht, 27-57.
- Gutteling J.M. and Wiegman O. (1996) Risk Communication. In: *Exploring risk communication. Advances in natural and technological hazards research*, 8 (pp. 27-57). Springer, Dordrech.
- Higbee, K. L. (1969). Fifteen years of fear arousal: Research on threat appeals: 1953-1968. *Psychological Bulletin*, 72(6), 426.
- Hyman, M. R. and Tansey, R. (1990). The ethics of psychoactive ads. *Journal of Business Ethics*, 9(2), 105-114.
- International Labour Organization (2019). World statistic: The enormous burden of poor working conditions. *ILO.org*. 16.07.2019, https://www.ilo.org/moscow/areas-of-work/occupational-safety-and-health/WCMS_249278/lang-en/index.htm.
- Laroche, M., Toffoli, R., Zhang, Q., and Pons, F. (2001). A cross-cultural study of the persuasive effect of fear appeal messages in cigarette advertising: China and Canada. *International Journal of Advertising*, 20(3), 297-317.

- LaTour, M. S. and Tanner Jr, J. F. (2003). Radon: Appealing to our fears 1. *Psychology & Marketing*, 20(5), 377-394.
- Kaya, A. and Bozkur, B. (2015). Kadercilik eğilimi ölçeğinin geliştirilmesi: Geçerlik ve güvenilirlik çalışması. *Mersin Üniversitesi Eğitim Fakültesi Dergisi*, 11(3), 935-946.
- King, K. W. and Reid, L. N. (1990). Fear arousing anti-drinking and driving PSAs: Do physical injury threats influence young adults? *Current Issues and Research in Advertising*, 12(1-2), 155-175.
- Laros, F. J. and Steenkamp, J. B. E. (2005). Emotions in consumer behavior: A hierarchical approach. *Journal of Business Research*, 58(10), 1437-1445.
- Lusk, J. L. and Shogren, J. F. (2007). *Experimental auctions: Methods and applications in economic and marketing research*. Cambridge: Cambridge University Press.
- Maddux, J. E. and Rogers, R. W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology*, 19(5), 469-479.
- Manyiwa, S. and Brennan, R. (2012). Fear appeals in anti-smoking advertising: How important is self-efficacy? *Journal of Marketing Management*, 28(11-12), 1419-1437.
- Mullen, J. E. and Kelloway, E. K. (2009). Safety leadership: A longitudinal study of the effects of transformational leadership on safety outcomes. *Journal of Occupational and Organizational Psychology*, 82(2), 253-272.
- Nabi, R. L., Roskos-Ewoldsen, D., and Dillman Carpentier, F. (2008). Subjective knowledge and fear appeal effectiveness: Implications for message design. *Health Communication*, 23(2), 191-201.
- Neal, A., Griffin, M. A., and Hart, P. M. (2000). The impact of organizational climate on safety climate and individual behavior. *Safety Science*, 34(1-3), 99-109.
- O'keefe, D. J. and Jensen, J. D. (2006). The advantages of compliance or the disadvantages of noncompliance? A meta-analytic review of the relative persuasive effectiveness of gain-framed and loss-framed messages. *Annals of the International Communication Association*, 30(1), 1-43.
- Padhy, M. K. (2011). *Advertising Management: Theory & Practice*. New Delhi: University Science Press.
- Panda, T., Panda, T. K., and Mishra, K. (2013). Does emotional appeal work in advertising? The rationality behind using emotional appeal to create favorable brand attitude. *The IUP Journal of Brand Management*, 10(2), 7-23.
- Patwary, M. A., Sarker, M. H., and O'Hare, W. T. (2012). Occupational accident: An example of fatalistic beliefs among medical waste workers in Bangladesh. *Safety Science*, 50(1), 76-82.
- Rogers, R.W. (1983). Cognitive and physiological processes in fear appeals and attitude change: A revised theory of protection motivation, in Cacioppo, J. T. and R. E. Petty (eds.) *Social psychophysiology: A sourcebook* (pp. 153-176). New York: Guilford Press.
- Rogers, R. W. and Prentice-Dunn, S. (1997). Protection motivation theory. In Gochman, D. (Ed.) *Handbook of Health Behavior Research -vol. 1 Determinants of Health Behavior Personal and Social* (pp. 113-132). New York: Plenum.
- Rothman, A. J., Bartels, R. D., Wlaschin, J., and Salovey, P. (2006). The strategic use of gain-and loss-framed messages to promote healthy behavior: How theory can inform practice. *Journal of Communication*, 56(suppl_1), 202-220.
- Ruiter, R. A., Kessels, L. T., Peters, G. J. Y., and Kok, G. (2014). Sixty years of fear appeal research: Current state of the evidence. *International Journal of Psychology*, 49(2), 63-70.
- Salminen, S. (1992). Defensive attribution hypothesis and serious occupational accidents. *Psychological Reports*, 70(3), 1195-1199.

- Senkal, A. D. and Bozoklu, C. P. U. (2014). Fear appeal intensity of visual cigarette warnings: an experimental research on Turkish young adults. *International Journal of Humanities and Social Science* 4, 11(1), 167-175.
- SGK İstatistik Yıllıkları (2017). İş kazası ve meslek hastalığı istatistikleri. SGK.gov 20.07.2019 http://www.sgk.gov.tr/wps/portal/sgk/tr/kurumsal/istatistik/sgk_istatistik_yilliklari
- Sheskin, D. J. (2020). *Handbook of parametric and nonparametric statistical procedures*. USA: CRC Press.
- Snipes, R. L., LaTour, M. S., and Bliss, S. J. (1999). A model of the effects of self-efficacy on the perceived ethicality and performance of fear appeals in advertising. *Journal of Business Ethics*, 19(3), 273-285.
- Stern, M. J. (2018). *Social science theory for environmental sustainability: A practical guide*. UK: Oxford University Press.
- Stiff, J. B. and P. A. Mongeau. (2003). *Persuasive communication* (2nd ed.). New York: The Guilford Press
- Tannenbaum, M. B. (2015). *Appealing to fear: A meta-analysis of fear appeal effectiveness and theories*. PhD Thesis. The University of Illinois at Urbana Champaign.
- Tannenbaum, M. B., Hepler, J., Zimmerman, R. S., Saul, L., Jacobs, S., Wilson, K., and Albarracín, D. (2015). Appealing to fear: A meta-analysis of fear appeal effectiveness and theories. *Psychological Bulletin*, 141(6), 1178.
- Tanner, J. F., Day, E., and Crask, M. (1989). Protection motivation theory: An extension of fear appeals theory in communication. *Journal of Business Research*, 19(4), 267-276.
- Tellis, G. J. (2004). *Understanding when, how, and why advertising works*. Thousand Oaks, California: Sage Publications
- Türkkan, A. and Pala, K. (2016). Trends in occupational injuries and fatality in Turkey. *International Journal of Occupational Safety and Ergonomics*, 22(4), 457-462.
- Üngüren, E. (2018). The impact of fatalistic beliefs of employees in accommodation companies regarding occupational accidents on burnout. *Journal of Tourism and Gastronomy Studies*, 41, 59.
- Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, The, 25(4), 40.
- Williams, K. C. (2011). Improving fear appeal ethics. *Journal of Academic and Business Ethics*, 5, 1-24.
- Williams, K. C. (2012). Fear appeal theory. *Research in Business and Economics Journal*, 5(1), 1-21.
- Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communications Monographs*, 59(4), 329-349.
- Witte, K. (1993). Message and conceptual confounds in fear appeals: The role of threat, fear, and efficacy. *Southern Journal of Communication*, 58(2), 147-155.
- Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). *Communications Monographs*, 61(2), 113-134.
- Witte, K. (1998). Fear as motivator, fear as inhibitor: Using the eppm to explain fear appeal successes and failures, in Andersen, P. A. & L. K. Guerrero (eds.) *Handbook of Communication and Emotion: Research, Theory, Applications, and Contexts* (pp. 423-451). San Diego, California: Academic Press.
- Witte, K. and Allen, M. (2000). A meta-analysis of fear appeals: Implications for effective public health campaigns. *Health Education & Behavior*, 27(5), 591-615.
- Witte, K., Meyer, G., and Martel, D. (2001). *Effective health risk messages: A step by step guide*. Newbury Park, CA: Sage.
- Witte, K. and Roberto, A. J. (2009). Fear appeals and public health: Managing fear and creating hope. In *Routledge Handbook of Applied Communication Research*, 624-650.

APPENDIX

Figure 2. Stimulus 1: Threat of injury message



Figure 3. Stimulus 2: No threat of injury message

