





BSc in psychology

The Emotional Impact of Tobacco-Warning
Images for Icelandic Smokeless Tobacco:
A Replication of Previous Study

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Foreword

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Abstract

The use of smokeless tobacco has been growing in popularity over the years. Smokeless tobacco is mostly consumed orally or sniffed. To raise awareness to the health risks that follows the use of smokeless tobacco; some countries have included warning labels to the products packaging. The main purpose of this study is to replicate which Grétarsdottir, (2017) conducted, with more heterogeneous sample, in less restricted settings by collecting the data through a web survey and to evaluate the impact of the TWIs with and without warning texts separately. In addition, identifying the emotional effects of tobacco warning images on a Icelandic smokeless tobacco container on users of smokeless tobacco; more specifically, to identify the emotional responses elicited by TWIs (with and without a warning text) in users, if placed on the lid of the container. Similar findings are between studies. Both show that unpleasant and highly arousing images show low levels of dominance. These findings indicate that unpleasant TWIs have more emotional effect for individuals towards health risk with the use of smokeless tobacco.

Keywords: Smokeless tobacco, Tobacco-Warning Images (TWIs), Valence, Arousal, Dominance

Útdráttur

Notkun á reyklausu tóbaki hefur verið að aukast í vinsældum yfir árin, og hefur notkun þess náð til milljónir manna yfir allan heim. Tóbaks framleiðendur nota ekki einungis auglýsingar og miðla til þess að markaðsetja vörunar sínar heldur eru tóbaks umbúðir stór þáttur í markaðsherferðum þeirra. Til þess að bæta vitneskju einstaklinga um heilsu skaða sem getur fylgt reyklausu tóbaki hefur verið bætt forvarnarmiðum á umbúðir vörunnar. Markmið þessarar rannsóknar er að endurgera fyrrum rannsókn Grétarsdottir (2017) með ólíku úrtaki, í takmarkaðari aðstæðum með því að safna gögnum í gegnum könnun á veraldarvefnum, og meta áhrifin af tóbaksvarnar mynda með og án texta í sitthvoru lagi. Einnig verður greint tilfinningaleg áhrif tóbaksvarnar mynda, á Íslensku neftóbaks dollum, á einstaklingum sem neyta reyklauss tóbaks og einstaklinga sem neyta þess ekki. Þá sérstaklega að greina áhrifin eftir því hvort myndirnar hafa meiri áhrif; með eða án texta, ef myndir eru staðsettar á loki dollunnar. Svipaðar niðurstöður komu frá báðum rannsóknum. Báðar rannsóknir sýndu að óþægilegri og meira örvandi myndir sýndu minni yfirráð hjá einstakling, þegar metið er heilsuskaða sem getur fylgt með notkun reyklausu tóbaki.

Efniðsorð: Reyklaust tóbak, Tóbaks forvarnir

The Emotional Impact of Tobacco-Warning Images for Icelandic Smokeless Tobacco: A
Replication of a Previous Study

The use of smokeless tobacco has increased over the years in many countries, and it has been making its way into the lives of millions of people and particularly into the lives of young adults (Hermes et al., 2012; Larsen, Rise, & Lund, 2013; Singh, 2014). Unlike smoking tobacco, smokeless tobacco is consumed orally or sniffed (Ebbert, Severson, Danaher, Schroeder, & Glover, 2012). In oral use of smokeless tobacco; individual usually places the tobacco under the upper lip; between the lip and the gum placing the tobacco near the oral mucosa (Zandonai et al., 2018). Although smokeless tobacco might be perceived as less harmful than cigarettes it can cause harm to those who use it; such as cancer, stroke, heart disease and gum disease (Han et al., 2016; Holman, Bricker, & Comstock, 2013; Janbaz, Qadir, Basser, Bokhari, & Bashir, 2014; Singh, 2014). In addition, smokeless tobacco carries the possibility of a bacterial contamination, because of the fact that smokeless tobacco product can carry pathogenic or opportunistic microorganisms that might result in the development of an infectious disease, which can be a concern because of the close contact of the smokeless tobacco product towards the oral mucosa (Han et al., 2016). It has also been found that extreme or extensive use of smokeless tobacco orally can have an increased effect on blood pressure and hypertension (Øverland et al., 2013).

With the use of mass media and advertisements the tobacco industry has been able to attract their consumers towards their product (Wakefield, Flay, Nichter, & Giovino, 2003). By using the tobacco packages as a marketing strategy (Moodie & Hastings, 2011), the tobacco industry is able, to their best ability, to communicate to the consumer and draw their attention towards the product; by using shape, size and coloring they can attract new consumers or keep

their consumers loyalty towards the brand (MacKenzie, Mathers, Hawkins, Eckhardt, & Smith, 2018; Moodie & Hastings, 2011; Slade, 1997).

To raise awareness of health risks that follows the use of tobacco; most countries have agreed upon the requirements set by WHO Framework Convention on Tobacco Control (FCTC) that tobacco package should carry a warning label, which consist of a health warning awareness in the form of text, image or both and should cover at least 30% of the package (Hammond et al., 2007). With this regulation the package will decrease the attractiveness of the product and therefore it should reduce the use of the product or keep an individual away from trying it for the first time (Moodie & Hastings, 2011). With the use of unpleasant images on the packages as an advertisement for health risk; the emotional response towards tobacco is considered to be more agreeable than it would be if the images would be pleasant (Bansal-Travers, Hammond, Smith, & Cummings, 2011; Fong, Hammond, & Hitchman, 2009).

Grétarsdottir (2017) conducted a study with 69 participants to identify the emotional effects of tobacco-warning images (TWIs) on a Icelandic smokeless tobacco container; more specifically, to identify the emotional response elicited by TWIs if placed on the side of the container or on the lid of the container. In Grétarsdottir (2017) the results showed that a larger-sized and unpleasant images on a lid of a smokeless tobacco container raised more negative emotions amongst the participants than if the images were smaller-sized on the side of the container. The arousal towards unpleasant images was higher than neutral or pleasant images. The results also showed that both unpleasant images and TWIs were associated with low levels of dominance, and pleasant images were associated with higher levels of dominance. In a previous study Bansal-Travers et al. (2011) found that both tobacco users and non users chose the most unpleasant TWIs had the most effect on them when they were to think of which TWIs

would most likely work to get their attention for health risks awareness. These findings were in line with previous studies (Bradley, Codispoti, Cuthbert, & Lang, 2001; Fong et al., 2009). Gantiva et al. (2016) conducted a similar study where they found that if a larger area, rather than smaller, of a cigarette packages was covered with unpleasant TWIs; the participants showed more unsettling emotions. The study also showed that images, which only showed text warnings, led to more habituation than if it was unpleasant TWIs. It appears that if a tobacco product simply has warning text; the consumer does not show the same negative emotional response that they might show if the package had a warning image or even both warning image and text (Munoz et al., 2013).

In Grétarsdottir (2017) the sample consisted only of university students from the age of 19 to 32, and she had to evaluate the combined effects of TWIs with and without warning text in her analysis.

The main purpose of this study is to replicate Grétarsdottir (2017) with more heterogeneous sample, in less restricted settings by collecting the data through a web survey, and to evaluate the impact of the TWIs with and without warning texts separately.

Method

Participants

In total 139 (62 males and 77 females) individuals participated in the study, ranging in age from 19 - 72 years with the average age of 31 years ($SD = 12$). Participants were selected by convenience to participate in the study. Of the 139 participants, majority (57.6%) reported to never have used smokeless tobacco, and 19.4% reported to use smokeless tobacco daily. The other 23% reported to either use smokeless tobacco less or have used it but had quit. However,

men were more likely than women to use smokeless tobacco, $\chi^2(4, 139) = 34.45, p < .001$. In this sample, a third of men said that they used smokeless tobacco daily, but only 8% of women.

Stimuli

Four TWIs with and without text warnings (i.e., oral and esophageal cancer, teeth and gum damage, premature birth, and impotence) were used in the study. Each of the TWIs was presented in two versions: (1) large, with text warnings, on the lid of the smokeless tobacco container, and (2) large without text warnings, on the lid of the smokeless tobacco container. All versions of the TWIs were presented in the form of photographs of a real smokeless tobacco container of the same size. Furthermore, 12 colored images were selected (four pleasant, four neutral, and four unpleasant) from the Internet meant to mirror that of Grétarsdóttir (2017) images from the International Affective Picture System (IAPS; image codes 2057, 2095, 2205, 2274, 2347, 4645, 6520, 7009, 7026, 7041, 7052, 7061, 7080, 7405, 9904, 8021, 9163 and 9927). These 12 images were used as comparison stimuli, and to minimize the influence of habituation to the TWIs. The 12 images were all presented without the Icelandic smokeless tobacco container.

Measures

Valence was measured with a 9 point answer scale (1 = unhappy, sad, joyless, irritated, unsatisfied and hopeless; 9 = happy, joyful, satisfied, contented, hopeful and relaxed). Arousal was measured with a 9 point answer scale (1 = laid back, well-balanced, sluggish, slow, tired and relaxed; 9 = excited, aroused, rapid, nervous, awake and worked up). Dominance was measured with a 9 point answer scale (1 = controlled by someone, affected by others, other might think of me, small, submissive and contingent upon; 9 = controls other, effects others, in full control, meaningful, influential and independent).

Procedure

One semi-randomized image presentations was used in this study. The images were randomized with the constraint that in the same image category was not presented consecutively.

Participants were recruited using a snowball sampling technique insofar as participants were asked to share the survey with their friends. The inclusion criteria for the study was being at least 18 years old. Participants were informed of their right as research participants, that their participation was voluntary, they did not need to answer all question, and could leave the survey at any time if they so wished.

Statistical Analysis

A mixed analysis of variance (ANOVA) was used to assess the emotional impact of the TWIs (with and without a warning text) in users and non-users of smokeless tobacco. A 2x2x5 design was carried out with gender, and users and non-users of smokeless tobacco as between-subject factors, and images (TWIs with and without warning text, pleasant images, neutral images and unpleasant images) as the within-subject factors. Additionally, age was controlled for in the analysis. The Greenhouse Geisser correction was applied when the assumption of sphericity was not met. A post hoc pairwise comparison was performed using Bonferroni correction. The level of significance was set at $p < .05$ for all analyses, and the effect size (η^2_p) was reported.

Results

Valence

For the valence dimension, there was a significant main effect of image, $F(1.75, 179.75) = 59.39, p < 0.001, \eta^2_p = .37$ (see Figure 1). Significant differences were found between pleasant, neutral, and unpleasant images (all $p < .001$). There were significant differences between the

TWIs with and without warning text and the pleasant and neutral images (both $p < .001$), however, no differences were found however, between the TWIs with and without warning text and the unpleasant images ($p > .05$). No other significant main effect or interactions were found.

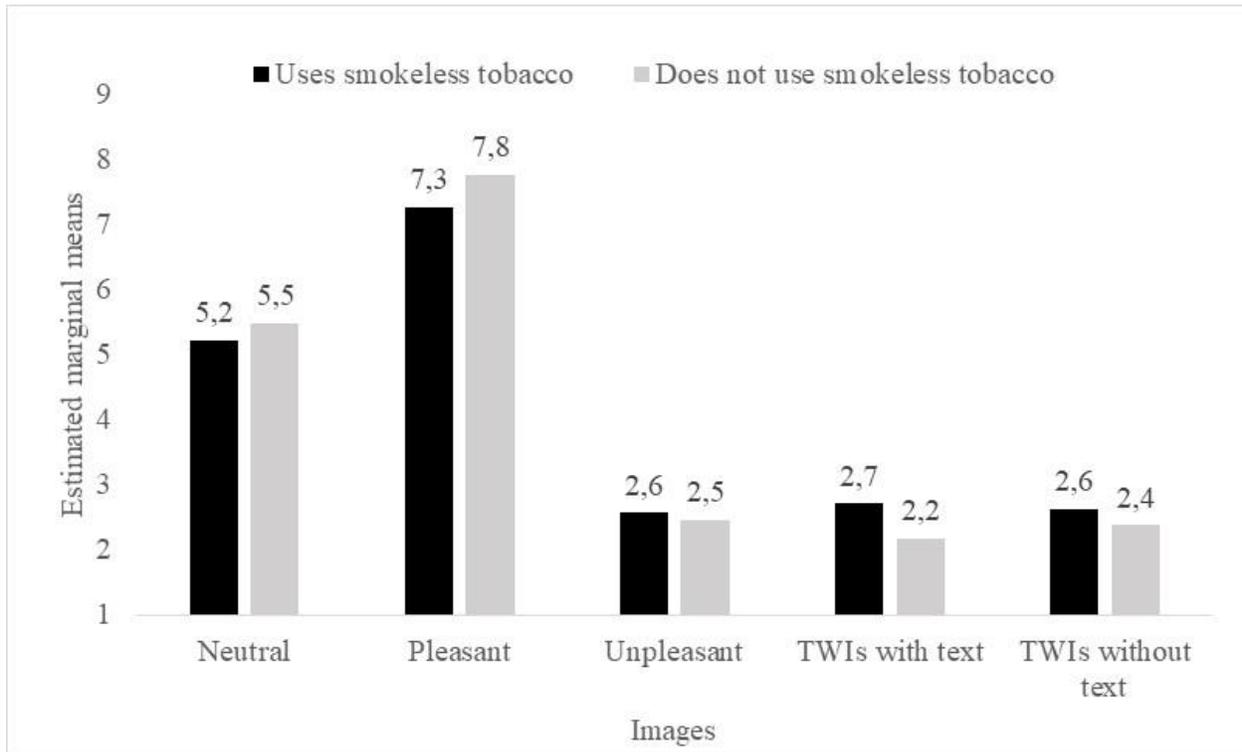


Figure 1. Emotional reaction, Valance, to all images by users and non-users of smokeless tobacco.

Arousal

For the arousal dimension, there was a significant main effect of image, $F(1.63, 167.85) = 3.81, p = .03, \eta^2_p = .04$ (see Figure 2). The pleasant and unpleasant images were perceived as more arousing than all other images (all $p < .001$). There was, however, no difference between neutral and unpleasant images and the TWIs with and without warning text (all $p > .05$). No other significant main effects or interactions were found.

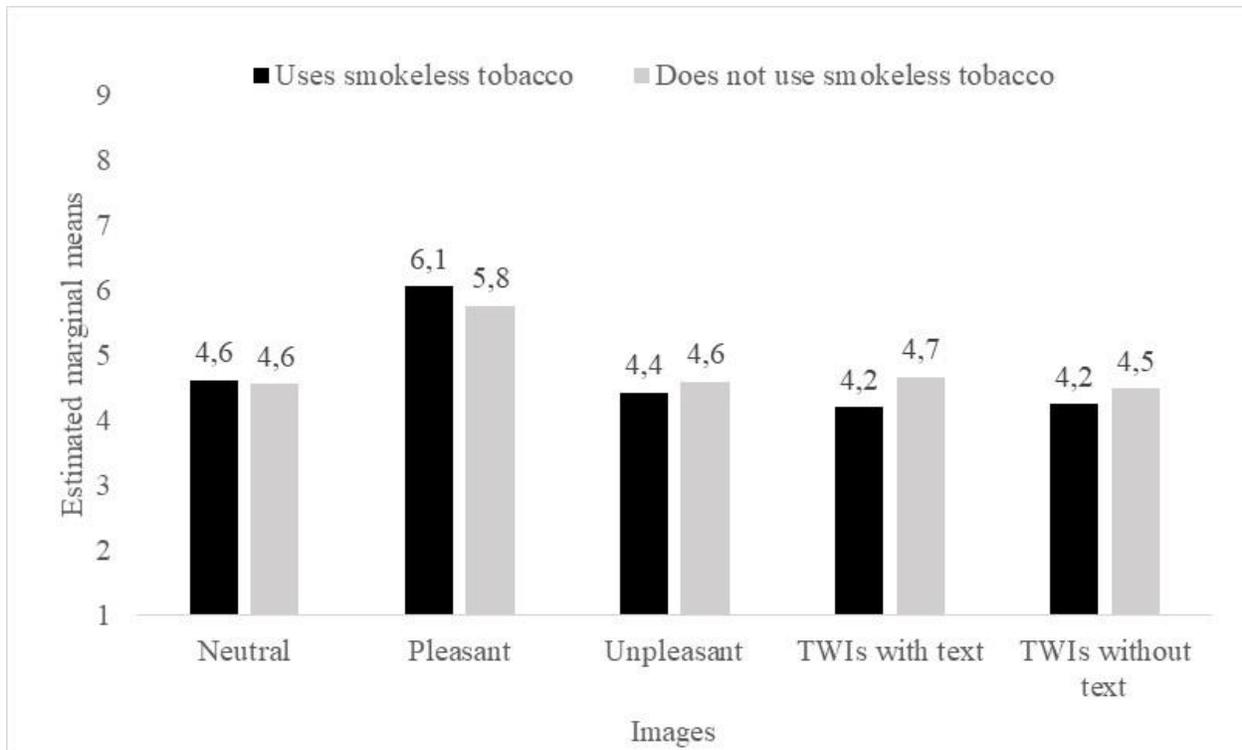


Figure 2. Emotional reaction, Arousal, to all images by users and non-users of smokeless tobacco.

Dominance

For the dominance dimension, there was a significant main effect of image, $F(1.81, 186.87) = 4.63, p = .01, \eta^2_p = .04$ (see Figure 3). The unpleasant images had lower dominance ratings compared with the pleasant and neutral images (both $p < .001$). And there was a difference between the pleasant and neutral images ($p < .001$). There were, however, no significant differences between the TWIs with and without warning text and the unpleasant images ($p > .05$). No other significant main effects or interactions were found.

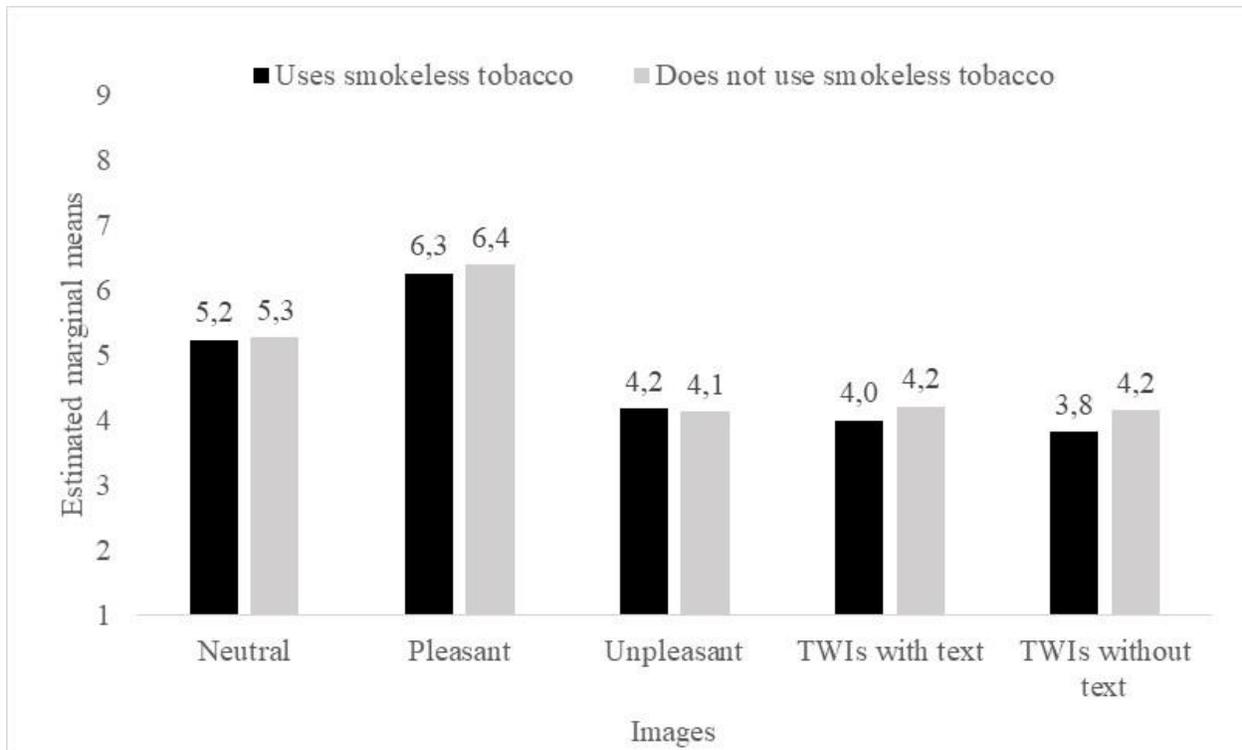


Figure 3. Emotional reaction, Dominance, to all images by users and non-users of smokeless tobacco.

Discussion

The main purpose of this study was to replicate Grétarsdóttir (2017) with more heterogeneous sample and in less restricted settings by collecting the data through a web survey. Additionally, to evaluate the impact of the TWIs with and without warning texts separately therefore identifying the emotional effects of TWIs on an Icelandic smokeless tobacco container. The present study found similar results when compared to Grétarsdóttir (2017) study. Both studies found a significant main effect of image for valence, arousal and dominance. Both studies also show that participants reported more upsetting emotions towards unpleasant TWIs rather than pleasant TWIs.

In comparison between studies, the results for valance and dominance had the most similarities. Both studies found that there was a significant difference between pleasant, neutral

and unpleasant images in results for valence. Furthermore, both studies also showed that unpleasant images had lower dominance ratings compared with the pleasant and neutral images and that there was a difference between the pleasant and neutral images. Additionally, TWIs did not differ from the unpleasant images for both valence and dominance

The results for arousal showed the most difference between studies. The present study found that pleasant images were perceived as more arousing than all other, and that there was no difference between neutral and unpleasant and the TWIs with and without warning texts, while Grétarsdottir (2017) showed that pleasant and unpleasant were perceived as more arousing and found no difference between pleasant and unpleasant images and the TWIs. High arousal fosters approach behavior (Bradley et al., 2001; Grétarsdottir, 2017; Lang, 2010; Lang & Bradley, 2010) and since in this study the TWIs did not include high arousal it is not completely clear if the TWIs used in this study could induce approach behavior.

The present study has several limitations. First limitation was that the researcher was not in control of the area that the study was conducted in. With the use of a web survey, the researcher can reach more participation with a wider-spread of the study. However, the researcher has no control of the settings in which the participants are participating in the study. These conditions can, therefore, have both positive and negative effect on the study. Another limitation was that the researcher had no information or knowledge about the screens which the study was conducted in and therefore could that have an effect on the images which were displayed. The Self-Assessment Manikin (SAM) was not used in the present study as an option for the study, and standardized images for emotions was not used, which could be a factor as why the arousal showed a different results.

The results from these studies indicate that the use of unpleasant imagery, as a warning to health risk with the use of smokeless tobacco product, could bring up a higher emotional response, from individuals, towards smokeless tobacco product. This should be a consideration for WHO Framework Convention on Tobacco Control (FCTC) to implement a straight regulation for the tobacco industry to do more than just cover the packaging with more than labeling, 30% of the package, warning texts to enhance the awareness of health risk that follows the use of smokeless tobacco (Hammond et al., 2007).

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