

## PERSUASIVENESS OF WRITTEN OTC MEDICINES LEAFLETS APPEALS

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**Abstract:** This study aims to determine appeals related to OTC (Over-the-Counter) medicines promotional leaflets and to establish their level of persuasiveness. The study was carried out in Slovenia from 1 March 2009 to 10 August 2012. Different leaflets were collected from 19 public and seven private Slovene pharmacies. They were selected by a statistical program; the pharmacies are from different regions in Slovenia and are publicly or privately owned. From a larger sample we selected thirty OTC medicines promotional leaflets, with equal therapeutic group shares. The criteria used for selecting the leaflets were different appeals and regions. Therapeutic groups, for treating infectious diseases, for treating allergies, and for treating osteoporosis, were chosen due to a high incidence of underlying diseases, different indication areas, and possible adverse events.

An existing model (Bell et al., 2000), related to direct-to-consumer-advertising of prescription medicines, was tested by a content analysis; a model comprised of four main categories, 'effectiveness', 'social-psychological enhancement', 'ease of use' and 'safety', and more subcategories. Then a novel, OTC medicines adjusted model with new appeal subcategories was introduced. A level of persuasiveness was determined, appeals were low persuasive, high persuasive or manipulative. A statistical analysis included determining frequencies, performing a t-test and a chi-square analysis.

Results show that rational appeals prevail over emotional appeals. There are 638 appeals, on average 21.27 appeals per leaflet. Results also show high frequency (418) in the 'effectiveness' appeal category, with 216 appeals in the osteoporosis, 150 in the infectious diseases, and 52 in the allergies treatment therapeutic group. 'Effective' appeals are found in all of infectious diseases treatment leaflets and 'symptom control' appeals in all leaflets relating to the allergy treatment. 'Social-psychological enhancement'

appeals are comparatively more common in the osteoporosis treating OTC medicines leaflets. 'Ease of use' and 'safety' appeals are especially related to the infectious diseases treating OTC medicines leaflets and osteoporosis treating OTC medicines leaflets. More low than high persuasive or manipulative appeals are found. 'Social responsibility' appeals are rare. Rational appeals, with 'effectiveness', 'ease of use', and 'safety' appeals, largely prevail over emotional, 'social-psychological enhancement' appeals. An importance of emotional appeals does not seem to be recognized by the creators of promotional texts.

A comparable higher share of the low persuasive appeals, related to rational appeals, is determined. High persuasive appeals are however related to emotional appeals. Manipulative appeals are found in the 'safety' category. 'Social responsibility' appeals are only observed in some leaflets, relating to the osteoporosis treatment group. Specific appeals are observed at OTC medicines promotion.

It can be concluded that more appeals are low than high persuasive, coinciding with a prevalence of rational appeals. A need for a higher share of emotional appeals is established, since emotions affect rational behavior. Only a few manipulative appeals with a potential of inappropriate medicine usage are found. 'Social responsibility' is more related to a preventive treatment in the researched sample. Some appeals are specific to OTC medicines. Creating and comprehending OTC medicines leaflets should be improved.

A predominance of rational, related to emotional appeals, is shown. There are more low persuasive than high persuasive and manipulative appeals; the latter may be associated with potentially inadequate treatment outcomes. We can estimate that social responsibility appeals are mostly lacking. Improved promotional leaflets with OTC medicines, in terms of balance between rational and emotional appeals, are needed. We established some specific OTC medicine appeals. There are also differences between three therapeutic groups, related to acute or preventive treatment. The new model including OTC medicine appeals is created and can be used and further refined.

**Keywords:** OTC medicine leaflets, appeals, information, persuasiveness, social responsibility

## PREPRIČLJIVOST APELOV V PISNIH GRADIVIH ZA ZDRAVILA BREZ RECEPTA

**Povzetek:** Cilj raziskave je bil določiti apele, povezane s promocijskimi gradivi za zdravila brez recepta in dokazati njihovo stopnjo prepričljivosti. To raziskavo smo izvedli v Sloveniji od 1. marca 2009 do 10. avgusta 2012. Zbrali smo različna gradiva iz 19 javnih in sedmih zasebnih slovenskih lekarn. Izbrane so bile s statističnim programom; lekarne so iz različnih slovenskih regij ter so javne ali v zasebnem lastništvu. Iz večjega vzorca smo izbrali 30 promocijskih gradiv z zdravili brez recepta, z enakimi deleži terapevtskih skupin. Izbrani kriteriji za izbor gradiv so bili različni apeli in regije. Terapevtske skupine, za zdravljenje infekcijskih bolezni, za zdravljenje alergij in za zdravljenje osteoporoze, smo izbrali zaradi velike incidence odgovarjajočih bolezni, različnih indikacijskih področij in možnih neželenih učinkov.

Obstoječi model (Bell in drugi, 2000), povezan z oglaševanjem zdravil na recept neposredno potrošnikom, smo testirali z analizo vsebin; model je vseboval štiri glavne kategorije, 'učinkovitost', 'socialno-psihološko izboljšanje', 'enostavnost uporabe' in 'varnost' ter več podkategorij. Potem smo uvedli nov, zdravilom brez recepta prilagojen model z novimi podkategorijami apelov. Določili smo raven prepričljivosti, apeli so bili manj prepričljivi, bolj prepričljivi ali manipulativni. Statistična analiza je vključevala določitev frekvenc, izvajanje t-testa in hi-kvadrat analizo.

Rezultati kažejo, da racionalni apeli prevladujejo nad emocionalnimi apeli. Prisotnih je 638 apelov, v povprečju 21,27 apela na prospekt. Rezultati kažejo tudi visoke vrednosti frekvenc (418) v kategoriji 'učinkovitost', z 216 apeli v skupini za zdravljenje osteoporoze, 150 v skupini za zdravljenje infekcijskih bolezni in 52 v terapevtski skupini za zdravljenje alergij. Apele 'učinkovit' smo našli v vseh gradivih za zdravljenje infekcijskih bolezni in apele 'nadzor simptomov' v vseh gradivih, povezanih z zdravljenjem alergij. Apeli 'socialno-psihološko izboljšanje' so primerjalno pogostejši v gradivih z zdravili brez recepta za zdravljenje osteoporoze. Apeli 'enostavnost uporabe' in 'varnost' so posebej povezani z zdravili brez recepta za zdravljenje infekcijskih bolezni in za zdravljenje osteoporoze. Našli smo več manj kot bolj prepričljivih ali manipulativnih apelov. Apeli 'družbena odgovornost' so redki. Racionalni apeli, z apeli 'učinkovitost', 'enostavnost uporabe' in 'varnost', znatno prevladujejo nad

čustvenimi, to so apeli 'socialno-psihološko izboljšanje'. Očitno pomembnosti čustvenih apelov ustvarjalci promocijskih besedil niso razpoznali.

Določili smo primerjalno večji delež manj prepričljivih apelov, povezanih z racionalnimi apeli. Prepričlivejši apeli so povezani s čustvenimi apeli. Manipulativne apele smo našli v kategoriji 'varnost'. Apele 'družbena odgovornost' smo opazili le v nekaterih gradivih, povezanih s terapevtsko skupino za zdravljenje osteoporoze. Pri promociji zdravil brez recepta smo opazili specifične apele.

Lahko zaključimo, da je več apelov manj kot bolj prepričljivih, kar sovпада s prevlado racionalnih apelov. Ugotovili smo potrebo po večjem deležu čustvenih apelov, ker čustva vplivajo na racionalno vedenje. Našli smo le nekaj manipulativnih apelov s potencialom za neustrezno uporabo zdravil. 'Družbena odgovornost' je bolj povezana s preventivnim zdravljenjem. Nekateri apeli so specifični za zdravila brez recepta. Ustvarjanje in razumevanje gradiv z zdravili brez recepta bi se moralo izboljšati.

Pokazali smo prevlado racionalnih, glede na čustvene apele. Prisotnih je več manj prepričljivih kot bolj prepričljivih in manipulativnih apelov; slednji so lahko povezani s potencialno neustreznimi izidi zdravljenja. Lahko ocenimo, da apeli, ki opisujejo družbeno odgovornost, večinoma manjkajo. Potrebujemo se izboljšana promocijska gradiva z zdravili brez recepta, z ozirom na ravnotežje med racionalnimi in čustvenimi apeli. Ugotovili smo nekatere specifične apele, ki se nanašajo na zdravila brez recepta. Veljajo tudi razlike med tremi terapevtskimi skupinami, ki se navezujejo na akutno ali preventivno zdravljenje. Ustvarili smo nov model, ki vključuje apele z zdravili brez recepta in se lahko uporablja ter nadalje izpopolni.

**Ključne besede:** gradiva z zdravili brez recepta, apeli, informacije, prepričljivost, družbena odgovornost

## 1. INTRODUCTION

The content of health and medicine information is important for its understanding by the scientific and general public, as it may affect behavior and health outcomes. Inappropriately designed content may negatively affect behavior unintentionally, or behavior can be intentionally manipulated. We decided to perform a content analysis of printed leaflets with OTC medicines information.

The results of content analysis were reported for prescription medicines information, advertised by Direct-to-Consumer-Advertising (Bell et al., 2000; Kaphingst et al., 2004; Schommer et al., 1998; Abel et al., 2007). DTCA takes place in the USA and New Zealand. The authors have pronounced fast growing advertising costs of DTCA (Schommer et al., 1998; Frank et al., 2002), and the need for a 'fair balance' of risks and benefits (Kaphingst et al., 2004; Baylor-Henry and Drezin, 1998; Nordenberg, 1998). U.S. Food and Drug Administration (FDA) requires that prescription medicines advertisements are not false or misleading and must encompass fair balance in the presentation of risks and benefits. Adequate provision requirement by the FDA states that advertisements should be presented in a consumer-friendly language (U.S. Food and Drug Administration, 1999). Opponents disagree with further introduction of DTCA and state that the appeals are emphasizing the benefits, not the problems, to increase prescribing, instead of educating (Hoffman and Wilkes, 1999). The under-treatment of some diseases is however stated as the meaning of DTCA. The authors claim it should be reported when advertising is not aligned with public health goals. The published study (Bell et al., 2000) examines DTCA trends, underlying medical conditions, promotional strategies, and demand incentives. Other authors (Kaphingst et al., 2004) performed a descriptive content analysis of DTCA television advertisements and followed the features of the advertisements with possible effects on understanding.

To our knowledge, there are few content analysis studies of OTC medicines. Advertisements in various media and frequent indications for OTC products have been published (Yusuff and Yusuf, 2009). Appeals referring to medicines that switched from prescription to OTC messages are described as containing more appeals than prescription medicines messages, 9.1 vs. 6.0 (Faerber and Kreling, 2012). DeLorme et al. (2007) claim that OTC medicines advertising has received considerably less empirical attention than OTC advertising of prescription medicines; since the mid-1970s, only 24 OTC medicines adverti-

sing studies have appeared sporadically in the literature. OTC medicines printed information in the pharmacy are found to be important, complemented by the pharmacist's advice, television advertisements, the Internet, and other information sources. In Slovenia, OTC medicines promotion is regulated by the Drug and medical devices advertising rules (Drug and medical devices advertising rules, 2001).

### 1.1. INFORMATIVE AND PERSUASIVE VALUE

Informative messages help consumers to acquire knowledge, whereas persuasive messages help them to change attitudes and behavior. Informative messages inform consumers about medicines; however, persuasive messages also attempt to persuade consumers to use them (Berndt, 2005). Information itself is insufficient, as many medical problems require a behavioral change (Worden and Flynn, 2001). A persuasive strategy aims at changing perceptions, attitudes, and behavior. Whereas informative promotion is intended to inform about the products, persuasive promotion involves a utility function (Narayanan et al., 2003).

Approximately twice as much content of informative as persuasive appeals is found in DTC advertisements of prescription medicines (Holmes and Desselle, 2004); these findings are evaluated as encouraging. A usage of 'informative' versus 'persuasive' appeals is described to coincide with the use of 'rational' versus 'nonrational' (emotional) appeals.

### 1.2. PSYCHOLOGY THEORIES RELATED TO PERSUASIVENESS

Psychology theories describe a relationship between persuasiveness and attitude and behavioral change. Classic information-processing is a model of general attitude and behavioral change, later elaborated into a persuasion matrix with the relationships between outcomes (changes in knowledge, attitudes, behavior) and inputs being persuasive communication (Flay and al., 1980). Elaboration Likelihood Model, ELA (Petty and Cacioppo, 1986) describes a central, more enduring route, resulting from a person's thoughtful considerations of the true information merit, and a peripheral route which occurs as a result of some simple cue. The theory of reasoned action (TRA) suggests that a person's behavioral intention depends on the attitude about the behavior and subjective norms (Fishbein and Ajzen, 1975). The theory of planned behavior includes intentions which capture the motivational factors that influence a behavior (Ajzen, 1991).

Emotion or feelings affect the thinking response, to become associated with the brand, by creating a positive attitude toward the advertisement (Stout and Rust, 1993). Individuals with a high need for cognition enjoy effortful cognitive activities (Harris and Moore, 1990). Contrary to the previous findings, Damasio (2005) showed anatomical and functional connection between reason and emotion. Therefore, rational decisions have to be supported by emotional stimuli for a person to make proper decisions especially in social matters.

## 2. OBJECTIVES

The literature review has shown that OTC medicines information is not extensively supported by research results. OTC medicines printed leaflets are an important information source. Rational and emotional appeals and their persuasiveness, with an effect on comprehension, were intended to be identified by a content analysis. Promotional leaflets with OTC medicines were already analyzed (Kaphingst et al., 2004), but in different media and following the DTCA model.

The existing model of appeals (Bell et al., 2000), with four main categories – 'effectiveness', 'social-psychological enhancement', 'ease of use', and 'safety' – was planned to be examined and adjusted to OTC medicines. The authors looked at terms and phrases in the advertisements to describe the medicine's nature or impact. After coding these terms or phrases, they were seeking related claims and created more general product attribute variables. An additional advantage of our study is determining the persuasive level of the appeals.

### 2.1. HYPOTHESES DEVELOPMENT

Three hypotheses can be stated.

Pharmaceutical companies are not predicted to be widely familiar with the theory that emotions support rational behavior (Damasio, 2005). Rational behavior is still regarded as physiologically independent and superior. We therefore assumed that rational appeals would be considered as primary and would prevail over emotional appeals.

*H1: OTC medicines-related leaflets include more rational than emotional appeals.*

Approximately twice as much share of informative as persuasive appeals is reported (Holmes and Desselle, 2004). Informative appeals are related to rational, and persuasive appeals are related to

nonrational (emotional) ones. Our classification includes three persuasive levels, low persuasive, high persuasive and manipulative appeals (see also Methods). Namely, high persuasive appeals have previously been regarded as misleading just because emotional elements have been included. However, only manipulative appeals which are exaggerated and have potential to cause ineffective and unsafe treatment, are damaging.

*H2: A higher share of low persuasive than high persuasive and manipulative appeals is expected.*

'Social responsibility' appeals are expected to be found in only a few leaflets. These appeals should be incorporated into a content, not emphasized as a special effort of the company, although that level is not expected. 'Social responsibility' appeals induce positive attitudes and enforce purchase intentions (Mohr et al., 2004).

*H3a: Appeals related to social responsibility are rarely shown.*

Some OTC medicines appeals are specific, due to the product specificities. OTC medicines appeals are expected to encourage demand. Prescription medicines are issued according to the physician's decision; a content of prescription medicines texts is also regulated by the legislation.

*H3b: Some appeals are specific to OTC medicines and belonging therapeutic groups.*

### 3. METHODS

#### 3.1. SAMPLING

Printed leaflets on health and medicines were collected from a representative sample of Slovenian pharmacies, statistically selected and deriving from different regions and of different kinds of ownership, as part of the already performed study (Kasesnik and Omerzu, 2009; Kasesnik, 2009). Different leaflets were collected from 19 public and seven private Slovene pharmacies in the spring of 2009. There were 119 leaflets with OTC medicines for treating infectious diseases, 46 leaflets with medicines for the allergies treatment, and 48 leaflets with medicines for the osteoporosis treatment. Thirty OTC medicine promotional leaflets were selected, with equal therapeutic group shares, on the basis of different appeals and regions. Therapeutic groups were chosen due to a high incidence of underlying diseases, different indication areas, and possible adverse events. Texts within the targeted therapeutic groups encompassed between 14 and 15.5 pages of an A4 format. Leaflets were collected from selected

Slovenian pharmacies, but were mostly translated versions of the internationally created leaflets, therefore a standardization took place. Therefore, results can be more generally interpreted.

#### 3.2. CONTENT ANALYSIS AND CODING PROCESS

The model (Bell et al., 2000) with rational and emotional appeals for prescription medicines was already developed. After searching for related claims and introducing more general variables, the researchers created four main categories and several subcategories, belonging to these categories. Their study however was not focused to a relation between rational and emotional appeals. In our study, this model was tested and changed to fit OTC medicines appeals. Words/phrases from 30 selected leaflets were classified into the (sub)categories within the existing model (Bell et al., 2000). Then new subcategories of appeals were introduced. A further integration, based on meaning associations and frequencies of appeals, took place to create an understandable OTC medicines model. The Visual Thesaurus (Visual Thesaurus) was used to determine associations between the words/phrases.

Two coders performed a coding procedure independently. The disparities were discussed and the results coordinated to achieve a final consensus.

#### 3.3. LEVEL OF PERSUASIVENESS

Three levels of persuasive appeals were produced. Operational definitions for informative and persuasive appeals (Holmes and Desselle, 2004) were used to code them as 'low persuasive' or 'high persuasive'. Since emotions support rational behavior (Damasio, 2005), we ascribed persuasiveness to all three levels:

- Low persuasive appeals: only persuasive to some extent, more informative, rational.
- High persuasive appeals: more persuasive than a), emotional.
- Manipulative appeals: exaggerated and unethical; persuasion is aimed at manipulating a thinking process. They may lead to the misuse of a medicine.

#### 3.4. STATISTICAL ANALYSIS

Frequencies of appeal (sub)categories within therapeutic groups were determined. One-sample t-test, for determining difference between a sample mean and a test value, was performed. We compared a number of appeals within (sub)categories, related to the test value. We determined

a statistical significance, a standard deviation, a mean and a mean difference, with a 99% and a 95% confidence interval. A two-tailed statistical significance was attributed when the p-value was lower or equal to 0.01 (0.05). T-test was performed when enough values were available to enable the calculations to be undertaken. The null hypothesis claimed that the population mean was equal to the specified value. The null hypothesis was tested; arithmetic means were compared to test values. Test values were determined as described at the end of Table 4, with an assumption of equal (sub)categories distribution. As test values, 5.32 was used for appeals categories and 1.52 for appeals subcategories, referring to the numbers of appeals.

Chi-square is a statistical test that tests for the existence of a relationship between two variables. By a Pearson chi-square analysis, a statistical significance between rational and emotional appeals was tested, in a total sample and according to examined therapeutic groups, in terms of a number of appeals (Table 5). A Person chi-square analysis was also used for testing a statistical significance between low persuasive and others, including high persuasive and manipulative appeals.

## 4. RESULTS

Testing H1, an assumed rational over emotional appeals prevalence, testing H2, an excess of low persuasive over high persuasive and manipulative appeals are shown in Tables 1, 2a, 2b and 3. Testing H3b, a specificity of OTC medicine appeals, is shown in Table 2b. 'Social responsi-

bility' appeals are included in Table 2a for testing H3a. These tables include appeal categorization, frequencies, and the persuasiveness level. The results of a t-test statistical analysis in Table 4 are aimed at testing H1, H3a, and H3b. Chi-square results (Table 5) show H1 and the H2 testing.

### 4.1. EFFECTIVENESS

Table 1 shows the presence of the 'effectiveness' appeals in all of the examined leaflets. High frequencies are seen in the 'effective' subcategory, with frequencies of 91, 27, and 180 in the infectious diseases, allergy, and osteoporosis treatment therapeutic groups, respectively. 50 'symptom control' appeals are observed in the infectious diseases treatment group. 'Effectiveness' appeals in the allergy treatment therapeutic group are attributed to a non-significance, but to a significance related to the osteoporosis treatment, and in the infectious diseases treatment a statistical significance depends on the confidence interval (Table 4). The same is valid for the 'effective' appeals. A high value of mean difference is seen in 'effectiveness' and 'effective' osteoporosis treatment appeals. Low persuasive levels are attributed to the 'effectiveness' appeals with rational features (Table 1).

### 4.2. SOCIAL-PSYCHOLOGICAL ENHANCEMENT

A high frequency of 'social-psychological enhancement' appeals (65), and their presence in a majority (9/10) of the leaflets, with 49 of 'patient orientated' appeals, is observed in the osteoporosis treatment therapeutic group (Table 2b). In

**Table 1:** 'Effectiveness' appeals in three therapeutic groups and their persuasiveness; for testing H1, H2, and H3b

Appeal category, subcategories	Frequencies of appeals I ; A ; O*	Appeals in the leaflets (n=3x10) I ; A ; O	Level of persuasiveness: 1/ 2/ 3 ** I ; A ; O
Effectiveness	150 ; 52 ; 216	10/10 ; 10/10 ; 10/10	
Effective	91 ; 27 ; 180	10/10 ; 10/10 ; 9/10	1 ; 1 ; 1
Cure, Prevention	5 ; 2 ; 1	4/10 ; 1/10 ; 1/10	1 ; 1 ; 1
Innovative, Powerful	4 ; 2 ; 19	3/10 ; 1/10 ; 8/10	1 ; 1 ; 1
Symptom control	50 ; 21 ; 16	9/10 ; 10/10 ; 7/10	1 ; 1 ; 1

Legend (for Table 1, Table 2a, Table 2b and Table 3):

\* Therapeutic groups: I=Infectious diseases treatment; A=Allergies treatment; O=Osteoporosis treatment.

\*\* Level of persuasiveness: 1=Low persuasive appeals; 2=High persuasive appeals; 3=Manipulative appeals.

**Table 2a:** 'Social-psychological enhancement' appeals ('Social, Social responsibility' appeals) in three therapeutic groups and their persuasiveness; for testing H1, H2, and H3a

Appeal category, subcategories	Frequencies of appeals I ; A ; O*	Appeals in the leaflets (n=3x10) I ; A ; O	Level of persuasiveness: 1/ 2/ 3** I ; A ; O
Social-psychological enhancement	21 ; 1 ; 65	7/10 ; 1/10 ; 9/10	
Social, Social responsibility	0 ; 0 ; 8	0/10 ; 0/10 ; 4/10	/ ; / ; 2

**Table 2b:** 'Social-psychological enhancement' appeals ('Psychological, Lifestyle', 'Patient orientated' appeals) in three therapeutic groups and their persuasiveness; for testing H1, H2, and H3b

Appeal category, subcategories	Frequencies of appeals I ; A ; O*	Appeals in the leaflets (n=3x10) I ; A ; O	Level of persuasiveness: 1/ 2/ 3** I ; A ; O
Social-psychological enhancement	21 ; 1 ; 65	7/10 ; 1/10 ; 9/10	
Psychological, Lifestyle	7 ; 0 ; 8	3/10 ; 0/10 ; 6/10	2 ; / ; 2
Patient orientated	14 ; 1 ; 49	4/10 ; 1/10 ; 9/10	2 ; 2 ; 2

the 'social-psychological enhancement' category, a significant statistical difference is attributed to the infectious diseases and allergies treatment, but a non-significant difference to the osteoporosis treatment (Table 4). High persuasive levels are determined for this appeal category, showing its emotional features (Tables 2a, 2b).

#### 4.3. EASE OF USE

A comparatively high frequency (57) of 'ease of use' appeals is seen in the infectious diseases treatment therapeutic group. Furthermore, for

this therapeutic group 'suitable for several patient subgroups' appeals are the most characteristic, with a frequency of 16 (Table 3). A non-significance is only observed in 'ease of use' category, related to infectious diseases treatment (Table 4). Low persuasive levels are attributed to 'easy of use' appeals category (Table 3).

#### 4.4. SAFETY

The frequencies of 'safety' category appeals are nine in infectious diseases, six in allergies, and 14 in osteoporosis treatment therapeutic groups

**Table 3:** 'Ease of use' and 'safety' appeals in three therapeutic groups and their persuasiveness; for testing H1, H2, and H3b

Appeal categories, subcategories	Frequencies of appeals I ; A ; O*	Appeals in the leaflets (n=3x10) I ; A ; O	Level of persuasiveness: 1/ 2/ 3** I ; A ; O
Ease of use	57 ; 18 ; 29	10/10 ; 7/10 ; 10/10	
Convenience, Economical	14 ; 6 ; 6	7/10 ; 4/10 ; 6/10	1 ; 1 ; 1
Suitable for several patient subgroups	16 ; 1 ; 9	7/10 ; 1/10 ; 7/10	1 ; 1 ; 1
Easy on system A) Good Compliance B) Interactions	14 ; 2 ; 10 12 ; 0 ; 10 2 ; 2 ; 0	4/10 ; 2/10 ; 5/10 5/10 ; 0/10 ; 5/10 2/10 ; 2/10 ; 0/10	1 ; 1 ; 1
Quick acting	13 ; 9 ; 4	5/10 ; 5/10 ; 2/10	1 ; 1 ; 1
Safety	9 ; 6 ; 14	6/10 ; 2/10 ; 6/10	
Safe	3 ; 3 ; 1	2/10 ; 2/10 ; 1/10	3 ; 3 ; 3
Natural	2 ; 0 ; 11	1/10 ; 0/10 ; 6/10	1 ; / ; 1
Nonaddictive, Nonmedicated	4 ; 3 ; 2	4/10 ; 2/10 ; 1/10	3 ; 1 ; 1

(Table 3). A significance is attributed to the 'safety' category, as well as all subcategories, with an exception of 'natural' appeals in the osteoporosis

treatment group (Table 4). Low persuasive and manipulative levels are determined in the 'safety' appeals (Table 3).

**Table 4:** Appeal (sub)categories in three therapeutic groups: t-test for H1, H3a, and H3b

Appeal categories, subcategories	Therapeutic Group		
	Infectious diseases treatment	Allergies treatment	Osteoporosis treatment
	t – value (absolute) ; Standard deviation; Significance (2-tailed); $p \leq 0.01^{**}$ ; $p \leq 0.05^{*}$ ; Mean ; Mean difference	t – value (absolute) ; Standard deviation; Significance (2-tailed) ; $p \leq 0.01^{**}$ ; $p \leq 0.05^{*}$ ; Mean ; Mean difference	t – value (absolute) ; Standard deviation; Significance (2-tailed) ; $p \leq 0.01^{**}$ ; $p \leq 0.05^{*}$ ; Mean ; Mean difference
Effectiveness	t = 2.995 ; $\delta$ = 10.220 ; 0.015 NS** S* 15.000 ; $\Delta$ = 9.680	t = 0.126 ; $\delta$ = 3.011 ; 0.902 NS 5.200 ; $\Delta$ = - 0.120	t = 4.546 ; $\delta$ = 11.325 ; 0.001 S 21.600 ; $\Delta$ = 16.280
Effective	t = 2.689 ; $\delta$ = 8.913 ; 0.025 NS ** S* 9.100 ; $\Delta$ = 7.580	t = 1.495 ; $\delta$ = 2.497 ; 0.169 NS 2.700 ; $\Delta$ = 1.180	t = 4.876 ; $\delta$ = 10.687 ; 0.001 S 18.000 ; $\Delta$ = 16.480
Cure, Prevention	t = 4.562 ; $\delta$ = 0.707 ; 0.001 S 0.500 ; $\Delta$ = - 1.020	t = 6.600 ; $\delta$ = 0.632 ; 0.000 S 0.200 ; $\Delta$ = - 1.320	t = 14.200 ; $\delta$ = 0.316 ; 0.000 S 0.100 ; $\Delta$ = - 1.420
Innovative, Powerful	t = 5.065 ; $\delta$ = 0.699 ; 0.001 S 0.400 ; $\Delta$ = - 1.120	t = 6.600 ; $\delta$ = 0.632 ; 0.000 S 0.200 ; $\Delta$ = - 1.320	t = 1.004 ; $\delta$ = 1.197 ; 0.342 NS 1.900 ; $\Delta$ = 0.380
Symptom control	t = 2.461 ; $\delta$ = 4.472 ; 0.036 NS ** S* 5.000 ; $\Delta$ = 3.480	t = 1.425 ; $\delta$ = 1.287 ; 0.188 NS 2.100 ; $\Delta$ = 0.580	t = 0.138 ; $\delta$ = 1.838 ; 0.894 NS 1.600 ; $\Delta$ = 0.080
Social-psychological enhancement	t = 4.664 ; $\delta$ = 2.183 ; 0.001 S 2.100 ; $\Delta$ = - 3.220	t = 52.200 ; $\delta$ = 0.316 ; 0.000 S 0.100 ; $\Delta$ = - 5.220	t = 0.639 ; $\delta$ = 5.836 ; 0.538 NS 6.500 ; $\Delta$ = 1.180
Psychological, Life-style	t = 1.939 ; $\delta$ = 1.337 ; 0.084 NS 0.700 ; $\Delta$ = - 0.820	/	t = 2.886 ; $\delta$ = 0.789 ; 0.018 NS** S* 0.800 ; $\Delta$ = - 0.720
Social, Social responsibility	/	/	t = 2.205 ; $\delta$ = 1.033 ; 0.055 NS 0.800 ; $\Delta$ = - 0.720
Patient orientated	t = 0.167 ; $\delta$ = 2.271 ; 0.871 NS 1.400 ; $\Delta$ = - 0.120	t = 14.200 ; $\delta$ = 0.316 ; 0.000 S 0.100 ; $\Delta$ = - 1.420	t = 2.358 ; $\delta$ = 4.533 ; 0.043 NS** S* 4.900 ; $\Delta$ = 3.380
Ease of use	t = 0.182 ; $\delta$ = 6.617 ; 0.860 NS 5.700 ; $\Delta$ = 0.380	t = 5.940 ; $\delta$ = 1.874 ; 0.000 S 1.800 ; $\Delta$ = - 3.520	t = 5.022 ; $\delta$ = 1.524 ; 0.001 S 2.900 ; $\Delta$ = - 2.420
Convenience, Economical	t = 0.214 ; $\delta$ = 1.776 ; 0.836 NS 1.400 ; $\Delta$ = - 0.120	t = 3.450 ; $\delta$ = 0.843 ; 0.007 S 0.600 ; $\Delta$ = - 0.920	t = 5.634 ; $\delta$ = 0.516 ; 0.000 S 0.600 ; $\Delta$ = - 0.920
Suitable for several patient groups	t = 0.129 ; $\delta$ = 1.955 ; 0.900 NS 1.600 ; $\Delta$ = 0.080	t = 14.200 ; $\delta$ = 0.316 ; 0.000 S 0.100 ; $\Delta$ = - 1.420	t = 2.657 ; $\delta$ = 0.738 ; 0.026 NS** S* 0.900 ; $\Delta$ = - 0.620
Easy on system	t = 0.157 ; $\delta$ = 2.413 ; 0.879 NS 1.400 ; $\Delta$ = - 0.120	t = 9.900 ; $\delta$ = 0.422 ; 0.000 S 0.200 ; $\Delta$ = - 1.320	t = 1.560 ; $\delta$ = 1.054 ; 0.153 NS 1.000 ; $\Delta$ = - 0.520
Quick acting	t = 0.314 ; $\delta$ = 2.212 ; 0.760 NS 1.300 ; $\Delta$ = - 0.220	t = 1.972 ; $\delta$ = 0.994 ; 0.080 NS 0.900 ; $\Delta$ = - 0.620	t = 3.666 ; $\delta$ = 0.966 ; 0.005 S 0.400 ; $\Delta$ = - 1.120
Safety	t = 15.963 ; $\delta$ = 0.876 ; 0.000 S 0.900 ; $\Delta$ = - 4.420	t = 11.057 ; $\delta$ = 1.350 ; 0.000 S 0.600 ; $\Delta$ = - 4.720	t = 4.564 ; $\delta$ = 2.716 ; 0.001 S 1.400 ; $\Delta$ = - 3.920
Safe	t = 5.716 ; $\delta$ = 0.675 ; 0.000 S 0.300 ; $\Delta$ = - 1.220	t = 5.716 ; $\delta$ = 0.675 ; 0.000 S 0.300 ; $\Delta$ = - 1.220	t = 14.200 ; $\delta$ = 0.316 ; 0.000 S 0.100 ; $\Delta$ = - 1.420
Natural	t = 6.600 ; $\delta$ = 0.632 ; 0.000 S 0.200 ; $\Delta$ = - 1.320	/	t = 0.741 ; $\delta$ = 1.792 ; 0.477 NS 1.100 ; $\Delta$ = - 0.420
Nonaddicted, Nonmedicated	t = 6.859 ; $\delta$ = 0.516 ; 0.000 S 0.400 ; $\Delta$ = - 1.120	t = 5.716 ; $\delta$ = 0.675 ; 0.000 S 0.300 ; $\Delta$ = - 1.220	t = 6.600 ; $\delta$ = 0.632 ; 0.000 S 0.200 ; $\Delta$ = - 1.320
Test value – appeal categories	638 (No. of all appeals) / 12 (4 categories x 3 th.groups)	= 53.17 / 10 (per leaflet item)	= 5.32
Test value – appeal subcategories	638 (No. of all appeals) / 42 (14 subcateg. x 3 th.groups)	= 15.19 / 10 (per leaflet item)	= 1.52

**Table 5:** Rational and emotional appeals in three therapeutic groups: Pearson chi-square test; for testing H1 and H2

Ratio between appeals	Therapeutic group / No. of appeals			Chi-square	
	Infectious diseases treatment	Allergies treatment	Osteoporosis treatment	Pearson chi-square Value, Significance	(2-sided)
Rational appeals*	216	76	259		
Emotional appeals**	21	1	65		
Rational / emotional appeals: total				6.000	0.199 NS
infectious diseases vs. allergies treatment				2.000	0.157 NS
infectious diseases vs. osteoporosis treatment				2.000	0.157 NS
allergies vs. osteoporosis treatment				2.000	0.157 NS
Low persuasive	209	73	258		
High persuasive + Manipulative appeals	21 + 7 = 28	1 + 3 = 4	65 + 1 = 66		
Low persuasive / (High persuasive + Manipulative appeals) : total				6.000	0.199 NS
infectious diseases vs. allergies treatment				2.000	0.157 NS
infectious diseases vs. osteoporosis treatment				2.000	0.157 NS
allergies vs. osteoporosis treatment				2.000	0.157 NS

Legend : Content of: \* Rational appeals = Effectiveness + Ease of use + Safety  
 " \*\* Emotional appeals = Social-psychological enhancement

#### 4.5. RATIONAL AND EMOTIONAL APPEALS FOR TESTING H1 AND H2

Rational and emotional appeals were analyzed by a Pearson chi-square test. Testing of H1 is presented in Table 5. The results of the Pearson chi-square test show no statistical significance (at an assumed 95% confidence interval) between rational appeals, including 'effectiveness', 'ease of use' and 'safety' category, and emotional appeals, namely 'social-psychological enhancement' category, in the total sample, or within individual therapeutic groups, in terms of a number of appeals. There is a problem of an appeal imbalance, with rational appeals prevailing over emotional appeals. H2 was also tested with the same statistical test. No statistical significance is found between low persuasive and others, including high persuasive and manipulative appeals (Table 5), in terms of a number of appeals.

#### 5. DISCUSSION

The first hypothesis claiming lower shares of emotional than rational appeals is confirmed. Regardless of the therapeutic group, in our study the highest frequency is in the 'effectiveness' appeals category, with 216 appeals in the osteoporosis, 150 in the infectious diseases, and 52 in the allergies treatment therapeutic group. 'Effectiveness' appeals are presented in all of the analyzed leaflets, regardless of the targeted therapeutic group. Statistical results of the mean difference – a difference between the sample mean and the test value – show large values in 'effectiveness' category and 'effective' appeals, related to osteoporosis and infectious diseases treatment, and, therefore, a disproportionately high occurrence of these appeals. These results are in line with the published results (Kaphingst et al., 2004), with an analysis of OTC medicines information on the radio, television, and displays, and a frequency of the 'efficacy' appeals of 100%. 'Symptom control' appeals appear in all

our examined leaflets only relating to the allergy treatment; these results agree with findings that ‘symptom control’ appeals are more common in the allergy treatment group than in the entire sample within the similar study (Bell et al., 2000). Our ‘effective’ appeals are found in all leaflets and ‘symptom control’ appeals in 90% of infectious diseases treatment leaflets – more than in the DTCA study (Bell et al., 2000); ‘effective’ appeals appear in 57% and ‘controls symptom’ appeals in 41% of advertisements. ‘Ease of use’ appeals are mainly attributed to the infectious diseases treatment. Similar study (Bell et al., 2000) shows ‘convenience’ appeals in 38%, ‘quick acting’ in 6%, ‘economical’ in 5%, and ‘easy on system’ in 3% of advertisements. Our ‘safety’-related appeals are found in low frequencies, complying with the similar study (Bell et al., 2000).

Rational appeals which include ‘effectiveness’, ‘ease of use’, and ‘safety’ category, largely prevail over emotional, ‘social-psychological enhancement’ appeals. This is also confirmed by a Pearson chi-square test, showing no statistical significance between rational and emotional appeals, regarding a number of appeals. The manufacturers do not seem to recognize the importance of emotional appeals. A prophylactic treatment may be a reason for ‘social-psychological’ appeals being comparatively more common in the osteoporosis treatment group. In the published study (Kaphingst et al., 2004), the predominant role of ‘efficacy’ and ‘psychological’ appeals is indicated. Our results are similar in the case of ‘efficacy’, but differ in ‘psychological’ appeals, especially related to the allergy treatment.

Also, the second hypothesis is confirmed: a comparable higher share of the low persuasive appeals is determined. Low persuasive appeals, identified in the ‘effectiveness’, ‘ease of use’, and ‘safety’ categories, are related to rational appeals. High persuasive appeals, identified in the ‘social-psychological enhancement’ category, are however related to emotional appeals. Manipulative appeals, as a part of the ‘safety’ category, create a possibility of misusing the promoted medicine.

Since ‘social responsibility’ appeals are only observed in some leaflets, H3a is also confirmed; these appeals are seen in the osteoporosis treatment group, with a non-significant statistical difference according to the test value. Advanced promotional approaches are incorporated in these appeals. Social responsibility induces positive attitudes and enforces purchase intentions (Mohr et al., 2001).

A difference in appeals between OTC and prescription medicines promotion is evident (Bell et al., 2000; Kaphingst et al., 2004), confirming H3b. Lesser advising at issuing OTC medicines could be compensated by appeals of interactions, suitability for different patient subgroups, specific facts on acting and advising. Scientific findings, quality, and credibility are often described in OTC medicines leaflets, and not needed in prescription medicines information, based on stricter legislation. OTC medicines leaflets encompass appeals relating to purchase intentions, showing a medicine appropriateness, importance, usefulness, convenience, compatibility, and the patients’ satisfaction. Some appeals may be more characteristic of the environment, since they also occur at promotion of other products (Kline, 2001).

Our study enables a basis for a different view of applying emotional appeals, as a support to efficient and cautious creation of rational appeals. The findings of our study give incentives to the creators of OTC marketing strategy. Therefore creators of the texts related to OTC medicines should emphasize emotional, persuasive appeals to a larger extent. However, written appeals should never lead to an ineffective or unsafe treatment.

## 5.1. LIMITATIONS

Our sample is relatively small and local. No funds were received and extensive research has been performed by two researchers. Future research efforts could be directed toward larger samples, areas, and other OTC therapeutic groups.

## 6. CONCLUSION

Our research results show a predominance of rational, related to emotional appeals. Although a prevalence of informative appeals is regarded as advantageous (Holmes and Desselle, 2004), this standpoint does not agree with a theory that emotions support rational decisions (Damasio, 2005). We establish a need for a higher share of emotional appeals. Low persuasive appeals prevail over high persuasive and manipulative appeals. Even a minor appearance of manipulative appeals may be associated with inadequate treatment outcomes. Our study results indicate that social responsibility appeals, supporting a quality patient treatment, are mostly lacking. We conclude that a higher level of awareness by consumers and manufacturers is needed in order to comprehend and create advantageous promotional leaflets with OTC medicines. OTC medicines appeals are specific and differ related to therapeutic groups, especially their acute

or preventive treatment nature. The newly created model including OTC medicines appeals can be used and further upgraded. A novel approach is suggested; it is based on the neurological findings and acknowledges an interaction between emotional and rational neurological system. Creators of OTC medicines leaflets should recognize an importance of a balance between rational and emotional appeals. A different approach should be adopted, as opposed to previous concepts which claimed that rational appeals were beneficial and emotional appeals were misleading. Addressing emotions may not only be efficient, but even necessary to achieve a promotional message to work. This is important for the pharmaceutical industry and even more for the public health sector. Of course, manipulative appeals may not be included in such text, due to their potential damaging health effects.

## REFERENCES

1. Abel, G.A., Lee, S.J., & Weeks, J.C. (2007). Direct-to-consumer advertising in oncology: A content analysis of print media. *Journal of Clinical Oncology*, 25(10), 1267–1271.
2. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
3. Baylor-Henry, M., & Drezin, N.A. (1998). Regulation of prescription drug promotion: direct-to-consumer advertising. *Clinical Therapeutics*, 20(Suppl.C), C86–C95.
4. Bell, R.A., Kravitz, R.L., & Wilkes, M.S. (2000). Direct-to-consumer prescription drug advertising, 1989–1998: A content analysis of conditions, targets, inducements, and appeals. *Journal of Family Practice*, 49(4), 329–335.
5. Berndt, E.R. (2005). To inform or persuade? Direct-to-consumer advertising of prescription drugs. *New England Journal of Medicine*, 352(4), 325–328.
6. Damasio, A. (2005). *Descartes' error, emotion, reason and the human brain*. New York: Penguin Books.
7. DeLorme, D.E., Huh, J., Reid, L.N. & An, S. (2007). The state of public research on over-the-counter drug advertising. *International Journal of Pharmaceutical and Healthcare Marketing*, 4(3), 208–231.
8. *Drug and medical devices advertising rules*. Official Gazette RS. 76/2001, including the changes 105/2008, 98/2009 and 37/2010. Official Gazette of the Republic of Slovenia. Accessed at [www.uradni-list.si/1/objava.jsp?urlid=200176&stevilka=3985](http://www.uradni-list.si/1/objava.jsp?urlid=200176&stevilka=3985), February 20, 2012.
9. Faerber, A.E. & Kreling, D.H. (2012). Content analysis of television advertising for drugs that switch from prescription to over-the-counter. *Drug Information Journal*, 46(2), 226–234.
10. Fishbein, M., & Ajzen I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading: Addison-Wesley.
11. Flay, B.R., DiTecco, D., & Schlegel, R.P. (1980). Mass media in health promotion: An analysis using an extended information-processing model. *Health Education & Behavior*, 7(2), 127–147.
12. Frank, R., Berndt, E.R., Donohue J., Epstein, A., & Rosenthal, M. (2002). *Trends in direct-to-consumer advertising of prescription drugs*. Menlo Park: The Henry J. Kaiser Family Foundation.
13. Harris, W.D. III, & Moore, D.J. (1990). Affect intensity as an individual difference variable in consumer response to advertising appeals. In: M.E. Goldberg, G. Gorn, & R.W. Pollay (Eds.), *Advances in Consumer Research* (17, pp. 792–797). Provo: Association for Consumer Research.
14. Hoffman, J.R., & Wilkes, M. (1999). Direct to consumer advertising of prescription drugs. *British Medical Journal*, 318(7194), 1301–1302.
15. Holmes, E.R., & Desselle, S.P. (2004). Evaluating the balance of persuasive and informative content within product-specific print direct-to-consumer ads. *Drug Information Journal*, 38(1), 83–98.
16. Kaphingst, K.A., Dejong, W., Rudd, R.E., & Daltroy, L.H. (2004). A content analysis of direct-to-consumer television prescription drug advertisements. *Journal of Health Communication*, 9(6), 515–528.
17. Kasesnik, K. (2009). Drug information management. In: A. Ježovnik (Ed.), *Creativity, innovation and management: proceedings of the 10th International Conference*, Management International Conference (pp. 1077–1086). Koper: Faculty of Management.
18. Kasesnik, K., & Omerzu, M. (2009). Promocijski materiali v slovenskih lekarnah. *Bilten*, 25, izredna št., 16.
19. Kline, M. (2001). (Ne)informativnost oglašnih sporočil. *Teorija in praksa*, 38(1), 47–62.
20. Mohr, L.A., Webb, D.J., & Harris, K.E. (2001). Do consumers expect companies to be socially responsible? The impact of corporate social responsibility on buying behavior. *The Journal of Consumer Affairs*, 35(1), 45–72.
21. Narayanan, S., Manchanda, P., & Chintagunta, P.K. (2003). The informative versus persuasive role of marketing communication in new product categories: An application to the prescription antihistamines market. *Social Science Electronic Publishing*.
22. Nordenberg, T. (1998). Direct to you: TV drug ads that make sense. *FDA Consumer*, 32(1), 7–10.
23. Petty, R.E., & Cacioppo, J.T. (1986). The elaboration likelihood model of persuasion. *Advances in Experimental Social Psychology*, 19, 123–205.
24. Schommer, J.C., Doucette, W.R., & Mehta, B.H. (1998). Rote learning after exposure to a direct-to-consumer television advertisement for a prescription drug. *Clinical Therapeutics*, 20(3), 617–632.
25. Stout, P.A., & Rust, R.T. (1993). Emotional feelings and evaluative dimensions of advertising: are they related? *Journal of Advertising*, 22(1), 61–71.
26. U.S. Food and Drug Administration, FDA (1999). *Guidance for industry, consumer-directed broadcast advertisements*. U.S. Food and drug administration, U.S. Department of health and human services.
27. *Visual Thesaurus*. Accessed at [www.visualthesaurus.com](http://www.visualthesaurus.com), April 02 – May 15, 2012.
28. Worden, J.K., & Flynn, B.S. (2001). The case for persuasive health messages. *Effective Clinical Practice*, 4(2), 73–75.
29. Yusuff, K.B., & Yusuf, A. (2009). Advertising of OTC products in a Nigerian urban setting: Content analysis for indications, targets, and advertising appeal. *Journal of the American Pharmacists Association*, 49(3), 432–435.