RECOGNIZED ASPECTS OF VISUAL CUES WITHIN MANAGING OTC DRUGS COMMUNICATION

Asist. mag. Karin Kasesnik, PhD candidate at the Faculty of Social Sciences, University of Ljubljana, Slovenia
karin.kasesnik@guest.arnes.si

Doc. dr. Mihael Kline, Faculty of Social Sciences, University of Ljubljana, Slovenia
mihael.kline@fdv.uni-lj.si

ABSTRACT
Visual cues in OTC drugs promotional materials were determined. We performed a content analysis of printed materials. The persons appeared in all of osteoporosis treating OTC drugs materials. Drug-related products were often seen. Identity reward visual cues, except drug taking, were mainly attributed to the osteoporosis treating drugs, where also relational rewards were solely found. It was established that observed visual cues directed the patients to drug purchasing. The differences between therapeutic groups coincided with the specificities of an underlying disease. It was concluded that educational efforts and regulatory control of visual cues is needed to enable an ethical approach.

Keywords: Visual cues, promotional materials, therapeutic groups, the behavior

INTRODUCTION
Health and drug information have been encompassed within promotional and official data providing materials. They have been aiming at changing or reinforcing the opinions of targeted public representatives. Different elements within health and drug information have been analyzed and predicted as being influential regarding the comprehension. Besides different textual elements, also visual cues have been described. More vulnerable patient groups, as the people with a low health literacy, were described to have difficulties in learning information from many written patient medical materials, including medication labels (Hill 2006). The health literacy was increasingly recognized as a critical factor affecting patient-physician communication and health outcomes, especially among elderly patients, and may have affected health outcomes (Williams et al. 2002).
The content of health-related information may affect the behavior of patients and also of health experts. Understanding health information may be related to a recognition of disease symptoms and treatment options. A proper comprehension of drug information has been related to appropriate drug-taking which may lead to a disease symptom relief or cessation. An occurrence of serious adverse events and a deteriorated medical status may however derive from an inappropriate comprehension of drug information. Besides a health prognosis of patients, also a reputation of health practitioners may depend on health outcomes of treated patients. Many health and drug materials have been issued by pharmaceutical companies. They have often been commercially driven and a lack of a balance between benefits and risks claims was shown (Kasesnik and Omerzu 2009). When a fact density in television adverts was determined, it was established that more time was given to absorb benefits than risks facts (Kaphingst et al. 2004).

These results encouraged us to start a research and to study the aspects of drug communication, since an importance of proper communication on the health and the drugs was recognized.

**Meaning of visual communication**

Six perspectives to analyze any image were shown, personal, historical, technical, ethical, cultural and critical (Lester 2006). It was found out that through an analytical process a person reviewed, refined, and renewed his/her personal reaction to the image. Analysis of the image has been a cyclic event, with a person moving from an initial, emotional, and subjective personal reaction to a rational, objective, and thoughtful personal response. Within the study, encompassing literature overview (Barnhurst, Vari, and Rodríguez 2004), a development of a changing visual communication during several periods was described. A recent rise and dominance of visual information was observed, yet still a lot of questions remained.

Concomitantly with a changing role of different communication channels, also visual communication was pronounced. An importance of visual cues was recognized also during studying Internet communication. The researchers (White and Dorman 2001) observed that online support groups emerged within health care as a result of the need of the individuals to find out more about health conditions they were confronting. This communication channel was described as an opportunity for health educators to reach target populations with specific messages. A reduction in contextual, visual, and aural cues was described (Parks and Floyd...
making online communication more impersonal and nonconforming than personal communication. A solution for a lack of visual information was given, by organizing the meetings or by adding some visual aids to overcome it.

A term visual literacy appeared, obviously with an aim to rationalize the effects of visual communication. A concept of visual literacy was explained as a complex matter, as there were many perspectives from which it could have been considered what it meant to be visually literate (Sims et al. 2006). An agreement was made that the visual literacy was a group of acquired competencies for interpreting and composing visible messages. An effective communicator should be able to create or select appropriate images to convey a range of meanings from concrete information to concepts and abstract expression, as well as being able to read, interpret and derive meaning from visual messages created by others. The overall aim of teaching the visual literacy should be to acquaint learners with the principles of visual communication, which can then be put into practice in a variety of settings and subject areas.

A process of visual perception was studied also from a physiological aspect. It was described that visual objects competed for representation in multiple brain systems, sensory and motor, cortical and subcortical (Duncan, Humphreys, and Ward 1997). The authors claimed that a competition was integrated, however, such that multiple systems converged, working on the different properties and action implications of a selected object. It was suggested that only a small part of the total visual input was used at any given time in the active control of the behavior. The authors (Kanwisher and Wojciulik 2000) of the study claimed that we were active participants in our own perceptual processes. Visual experience depended critically on attention. Particular aspects of a visual scene were selected for detailed analysis and control of a subsequent behavior, but other aspects were ignored and not memorable. The authors described the attention as central to the construction of every visual experience. The attention affected processing at the first stage of cortical information processing, in the primary visual cortex. The attention also increased baseline activity in the cortex. Besides, the attention can select locations, features, objects or a combination thereof.

Cline and Young gave a very detailed analysis of visual cues in DTCA drug materials (Cline and Young 2009). The authors were aiming at determining visual features of DTCA with a potential to capture consumers’ attention and motivate them to alter their behavior. Several research questions were stated. The researchers wanted to find out what percentage of direct–
to-consumer print ads depicted models, including their demographic characteristics. They also wanted to establish the nature and frequency of identity rewards and of relational rewards within direct-to-consumer print ads via visual cues. Visual cues classification with included positive and negative emotional appeals was a part of another published study (Frosch et al. 2007).

A present research study has been aiming at a further development of a complex research area. Visual cues were previously determined in DTCA materials. Visual cues in OTC drugs materials were meant to be analyzed in the present study, since different visual communication has been predicted. A sample derived from Slovenian pharmacies; several attributes can be globally recognized, however, some features can be attributed to a local market. This preliminary study is intended to advance by considering other therapeutic groups.

The present study derived from a main research problem that visual cues may have an impact on the behavior, but this area has not been largely considered at designing promotional materials or regulated. When the literature and the observations have been accounted, the ambiguities or the inconsistencies regarding visual communication have still remained (Barnhurst, Vari, and Rodriguez 2004; Parks and Floyd 1996; Cline and Young 2009). According to the present knowledge, the visual communication has been a complex process, with an extensive influence on the perception, and with an affect on the behavior (Kanwisher and Wojciulik 2000). However, interpreting visual stimuli was not a part of education and therefore different interpretations of visual cues may appear even when a systematic approach has been used. Positive aspects of promotional materials, with visual cues included, have been in providing the information regarding OTC drugs which have encouraged a proper usage of the drugs. But when visual cues have been used to increase the sales, without considering the health of the population, negative aspects have been encompassed and therefore an unethical approach can be confirmed. Target visual cues were studied to confirm our assumptions.

Several hypotheses were tested:

H1: A predominant presence of the persons has been evident in promotional items, indicating a need for a treatment by the promoted drug.

A frequent presence of the persons within promotional texts has been expected, often showing the symptoms of the disease before the treatment, or a relief of the symptoms after the
pharmacological treatment. A presentation of the symptoms may encourage a patient's intention to purchase a certain OTC drug.

H2: Visual cues in OTC drugs materials have often been directed to drug packaging, expected to fortify purchase intentions concerning the specific drug. Drug packaging has been predicted to be often shown in OTC drugs materials, since specific drugs can be more easily recognizable at purchasing and therefore a purchase decision can be facilitated. Presenting the images of drug packaging has therefore been predicted to influence the promoted drugs sales. As established in the study (Karayanni and Georgi 2011), OTC promotion strategies were built on in-pharmacy store promotion, besides considering a brand awareness and an appropriate pricing, shown by an analysis of consumer attitudes towards OTC purchases.

H3: The differences have occurred between visual cues in the materials, related to symptomatic diseases (viral infections, allergies), in comparison with visual cues related to the osteoporosis. In symptomatic diseases, described in OTC drugs promotional materials and related to viral infections and the allergies, the symptoms of mentioned diseases have been predicted to be mainly visually shown. In the case of the osteoporosis, however, obvious symptoms have appeared in a subsequent course of the disease, but not in an early stage. In an advanced disease stage, very serious complications can be shown as bone fractures. An OTC pharmacological treatment has been efficacious as a prevention or in an early disease stage. Therefore positive images with physically active persons have been expected to be shown. A physical activity has also been important for an efficacious prevention of the osteoporosis and has also supported pharmacological measures.

A difference in visual cues included in DTCA and OTC drugs materials has been assumed to derive from a different concept of issuing the drugs. DTCA claims have been referring to prescription drugs, prescribed by a physician and issued in a pharmacy. On the other hand, OTC drugs have been issued in a pharmacy on the basis of a patient's request, or have sometimes been accompanied by an advice of the pharmacist or another healthcare expert. However, often a limited time period has been dedicated to advising patients and discussing drug issues, therefore an importance of printed media has been established.
METHOD

We analyzed promotional items collected within a larger sample and coded visual cues within a content analysis. Then visual cues were analyzed on the basis of previous research findings. The results were statistically evaluated by below described methods.

Sample

A larger sample of the materials on the health and the drugs was obtained from a representative sample of Slovenian pharmacies, as a part of the already performed study (Kasesnik and Omerzu 2009). Every different material was collected from each pharmacy. The items were collected from 26 Slovenian pharmacies, 19 public and 7 private ones. Sampling took part within approximately a month period, in the spring 2009. 1,474 items constituted a larger sample of the materials, with 10,396 products from different product groups. Some of the materials included health information, sometimes with a disease description and a logo of a pharmaceutical company, leading a reader to a further search for related drug information (Table 1). The largest share of the materials was attributed to product-related materials (67.6%). Very similar shares within these materials were related to nutritional supplements (23.0%), to cosmetic products (22.6%) and OTC drugs (22.0%). OTC drugs materials were in the form of leaflets, and some of them of booklets, with 2 to 68 pages.

Table 1: Original sample size and selected items, complying with observed therapeutic groups

<table>
<thead>
<tr>
<th>Larger sample – No. of items</th>
<th>1,474</th>
</tr>
</thead>
<tbody>
<tr>
<td>Larger sample – OTC drugs</td>
<td>324</td>
</tr>
<tr>
<td>Selected items – viral infections</td>
<td>10</td>
</tr>
<tr>
<td>Selected items - allergies</td>
<td>10</td>
</tr>
<tr>
<td>Selected items - osteoporosis</td>
<td>10</td>
</tr>
</tbody>
</table>

For a purpose of determining visual cues, the materials with OTC drugs groups for treating viral infection, the allergies and the osteoporosis, found in approximately equal proportions, were chosen. Ten promotional materials complying with each chosen therapeutic group were selected, therefore thirty items were analyzed in details. Whenever possible, a diversity in communicating was considered as an important criterion for selecting these materials, rather
than analyzing very similar materials. Material items were chosen on the basis of different product description and content, and an equal region distribution. Therapeutic areas were selected mainly on the basis of the disease prevalence and a related frequency of OTC drug purchasing, an availability of promotional items and partly an availability of existing data.

Then the content analysis was implemented. A coding procedure was performed, in order to detect visual cues. When the persons were coded, the photographs or the drawings were considered. A frequency of drug products was estimated according to an actual presence in promotional items, even if the products were not predominant in relation to the persons, as designed by the already published study (Cline and Young 2009).

For each promotional material the following model-related factors were coded:
- the presence or the absence of persons;
- the visual image of objects, being living creatures or inanimate objects; drug-related products were specifically observed.
For ads depicting people, three identity rewards were coded: models appearing to be healthy, active, or friendly.
- Models were identified as healthy or ill.
- Activity was coded as physically active, socially active (more than one person) and taking medication.
- Being friendly was operationalized as smiling.
A composite identity reward variable was created on the basis of included particular variables (i.e., healthy people, being physically or socially active, and/or any model smiling).
For ads depicting models, two factors reflected relational rewards: social context and relational context. Relational context was based on the number of people depicted:
- alone, two persons, or a group (three or more persons).
A composite relational reward variable was also created, with all belonging variables involved in particular material item.

The coder independently coded the sample of 30 promotional materials. Then the coder recoded, and the second coder coded a sample of 10 promotional materials, in order to have reliable results. Some disagreements were further discussed, and finally 90 % to 100 % agreement was achieved.
Our research results were obtained after complying with an already known classification. However, due to some substantially different results and an involvement of OTC drugs and also a presence of an additional therapeutic group, original findings were delivered.

**Statistical analysis**

The frequencies were used for determining how often certain visual visual cues appeared in a particular promotional item. This test was suitable for small samples. One sample t-test has been a statistical procedure used to examine the mean difference between the sample and the known value of population mean. In our sample it was determined whether the values were statistically different from given values. 99 % confidence interval was assumed and two-sided statistical difference was calculated.

Target values were assumed: an involvement of at least one person in all items, regardless of the therapeutic group. Displaying drug-related products, e.g. drug packaging, was predicted in all of promotional items, also regardless of the therapeutic group. The target value was determined also for the presence of identity and relational rewards in promotional items. The results were statistically processed.

**RESULTS**

The results, important for testing stated hypotheses, were shown. We focused on the appearance of persons, identity rewards and relational rewards of different appeals.

**Appearance of models**

The frequencies of visual cues within OTC drugs materials, shown as the appearance of persons, were 8 for viral infections OTC drugs, 5 for allergies treating OTC drugs and 10 for osteoporosis treating OTC drugs (Table 2). A number of persons varied from 1 to 16 in individual promotional items. The frequencies of drug packaging were 6 for promotional items related to viral infections drugs and 9 for promotional materials describing the drugs for the allergies treatment and for the treatment of the osteoporosis, respectively. By a t-test a non-significant difference was shown when the persons in viral infections and in allergy therapeutic group were concerned, and when drug-related products were regarded in all three therapeutic groups. Body parts were included in some materials. The animals were never
included, however some objects, other than drug packaging, were observed in particular promotional materials.

**Identity rewards**
Healthy persons were observed in all of promotional messages concerning osteoporosis treating drugs and to a lesser extent in other studied promotional materials, with a frequency 1 in viral infections OTC drugs materials and 3 in allergies OTC drugs materials (Table 2). A frequency of persons, appearing as being ill, was higher in the materials with viral infections OTC drugs description (3) than in the allergies - related OTC drugs materials (2). By a t – test a significant difference was shown concerning healthy and ill persons in viral infections and allergies therapeutic group.

Physical and social activities were substantially observed in promotional materials related to osteoporosis treatment OTC drugs, with the frequencies 9 and 6, respectively. A friendly attitude was found in all of the items with OTC drugs for the osteoporosis treatment and to a much lesser extent within the materials complying with the allergies therapeutic area, with a frequency 2. A presentation of drug taking was common in promotional materials complying with the viral infections treatment, with a frequency 8, followed by a frequency 5 in the allergies treating group and 2 in the osteoporosis treating group. A composed identity reward variable was highly related to the osteoporosis treating drug group, though not to promotional materials related to other observed therapeutic groups.

In the osteoporosis therapeutic group, a non - significant difference was determined by a t - test regarding a physical and a social activity. A non - significant difference was shown in the viral infections and the allergies therapeutic group concerning drug taking, however a significant difference was determined in the osteoporosis therapeutic group.

**Relational rewards**
A frequency of a presence of persons in the groups of three or more, within a relational context, was 5, when the materials with the osteoporosis treating OTC drugs were considered (Table 2). The persons in groups in other two therapeutic areas were not established.

For the osteoporosis treatment group, a relational aspect was the most characteristic, with a leading role concerning an appearance of persons in the groups. A presence of the visual cue,
described as the persons in the groups, was described as non-significant in relation to the target value. Also a frequency of a composed relational reward variable, with all belonging variables present in individual promotional materials, was the highest in promotional materials, related to the drugs for the osteoporosis treatment.

Below please see the Table 2 where the frequencies and the results of t – test, related to particular visual cues, have been included. The results have been presented for all three regarded therapeutic groups. Numeric values for visual cues, found in individual promotional materials, have been written; the values in italic font below have expressed the numbers of promotional materials where these visual cues were not found.

Table 2: Frequencies and t-test of visual cues within OTC drugs materials, by therapeutic groups

<table>
<thead>
<tr>
<th>Visual cues</th>
<th>Drugs viral inf.</th>
<th>Drugs allergies</th>
<th>Drugs osteop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group(s)</td>
<td>Visual cues subgroups</td>
<td>Visual cues</td>
<td>Frequencies</td>
</tr>
<tr>
<td>Models</td>
<td>Persons Present 8</td>
<td>2 t=1,500</td>
<td>5 t=3,000</td>
</tr>
<tr>
<td>Products</td>
<td>Drug-related products 6</td>
<td>4 t=2,449</td>
<td>9 t=1,000</td>
</tr>
<tr>
<td>Identity reward</td>
<td>Persons healthy / ill 1</td>
<td>9 t=9,000</td>
<td>3 t=4,583</td>
</tr>
</tbody>
</table>
DISCUSSION

Our results concerning the share of OTC drugs materials with the persons depicted, have been close to the results of the published study (Cline and Young 2009), despite a difference in the
products and therapeutic groups; in the mentioned published study, among others, two of discussed three therapeutic groups were regarded, the drugs for the allergies treatment and the drugs for the treatment of infectious (non-HIV) conditions. However, due to the above mentioned differences, already published results cannot be directly applied.

When the appearance of persons in promotional materials was regarded, it was observed that the persons were included in all of promotional materials with osteoporosis treating drugs, less in promotional materials with viral infections drugs, and in just in a half of the materials with allergies treating drugs. One sample t-test showed a non-significant difference in viral infections and allergies OTC drugs materials, therefore the hypothesis concerning the presence of the persons in promotional materials, regardless of the therapeutic area, has been confirmed. On the contrary, following the findings within the known study (Cline and Young 2009), the persons were depicted in more DTCA materials describing allergies treating drugs than in DTCA materials with viral infection drugs.

Our study results have shown that drug-related products have often appeared in the materials: drug packaging, in the form of blister or similar primary packaging and sometimes the secondary packaging, as a box of the drug. Visual cues related to drug packaging were more common in OTC drugs materials complying with the allergies treatment and with the osteoporosis treatment than in the materials describing OTC drugs for treating viral infections. However, a non-significant difference was statistically confirmed for all three therapeutic areas. Our hypothesis that drug packaging has been one of the drug-related cue, with a likely aim to encourage purchase intentions and increase the sales, has therefore been confirmed.

Within our research results also environmental elements, e.g. blooming trees, were sometimes included into corresponding materials with promotional messages. The presence of the plants was associated with the origins of the allergy. These visual cues were characteristic for the allergy treatment OTC group.

Healthy persons were shown in the osteoporosis therapeutic group, even in all of analyzed materials. Ill persons were observed in viral infections and allergies treating drugs materials, however not as much as expected, with a significant statistical difference. In our study, drug-taking visual cues were much more common, especially in the viral infection and the allergies therapeutic group, with a non-significant difference according to expected value defined as
the presence of that visual cue in all materials. At drug – taking visual cues, encompassed in osteoporosis treating OTC drugs promotional materials, a significant difference was shown, therefore encouraging the persons to take drugs by visual cues did not often take place. Very different findings were derived from DTCA materials; the persons taking medications were shown in only a small share of the materials (Cline and Young 2009), presumably because DTCA materials included the drugs, prescribed by a physician and accompanied by professional instructions.

In our study it has been shown that physical activities and social activities have been common visual cues in osteoporosis treating OTC drugs materials, with a non - significant difference according to the target value. On the other hand, at researching DTCA materials, Cline and Young found out that a majority of ads depicted exclusively healthy appearing people. The authors showed a difference between therapeutic groups, when identity rewards were viewed compositely. Identity rewards in the materials, related to the allergies, were observed in all of promotional materials, and a lesser, but still a predominant share was observed within the materials, related to viral infection therapeutic area.

In our study results, the appearance of smiling persons depended on the therapeutic group. In the osteoporosis therapeutic group, they were observed in all of the materials. In the materials, describing OTC drugs for treating viral infections, no positive appeals in the form of smiling persons were observed. In the materials, describing OTC drugs for the allergy treatment, smiling persons were shown in a few materials, with a significant difference from a target value.

Relational rewards were also especially attributed to promotional materials with osteoporosis treating OTC drugs, referring also to a composed relational reward. For the persons in the group, a non - significant statistical difference was determined for the osteoporosis therapeutic group. The hypothesis that the differences have occurred between visual cues in the materials, related to symptomatic diseases (viral infections, the allergies), in comparison with visual cues related to the osteoporosis, has been confirmed.

In our study the results were valid for OTC products, belonging to three therapeutic groups. However, in the study with differently regulated drugs (Cline and Young 2009), advertising of prescription drugs was analyzed. The decision on a prescription drugs choice has been made...
in the physician office. On the contrary, with an aim to encourage a demand, the incentives to purchase OTC drugs have often been included in promotional materials. Also a choice of drugs has differed between a prescription and an OTC drugs group. OTC drugs packages have often served as visual cues in studied promotional messages and may have been intended for a differentiation of promoted products by the patient.

In promotional messages with osteoporosis treating drugs, a comparatively more positive approach was observed. However, the osteoporosis treatment may have been advised even when a patient was still asymptomatic. The absence of symptoms has often been visually presented as a lifestyle improvement. Promotional efforts may have often been targeting the patients even when a proper lifestyle has been sufficient for maintaining healthy bones. Therefore drug promoting efforts may have competed with a healthy lifestyle, although some companies chose an advanced promotional approach with a healthy lifestyle as a complementary measure. Some differences in visual cues may be based on cultural differences or previous marketing researches.

CONCLUSION

Study results have shown various visual cues within researched materials. Visual cues interact with textual elements and create, through affecting an understanding, an influence on the behavior of the target public. As far as we know, the present study is the first one, describing visual cues found in OTC drugs materials in details. Previous studies determined visual cues in DTCA of prescription drugs within printed and television claims, however, in our study visual cues in OTC promotional materials were determined. A difference in visual cues was evident, leading to a conclusion that many of them have derived from different symptom occurrence or were driven by a demand. We can conclude that visual cues in promotional materials should be carefully designed, since they affect an understanding and may influence a rationality of the OTC drugs usage. And most of all, the efforts for educating the representatives of the general public regarding their interpretation of presented images, as well as controlling created visual cues before the market is reached, is an essential part of the balanced promotion. When an unethical approach has been used by exploiting visual cues to increase the sales, the health status of the persons, being exposed to these appeals, may be deteriorated.
Limitations of the study and future suggestions

Our study has got some limitations. A relatively small sample has been used, although it has been a representative one. Three therapeutic areas have been targeted and in the future we intend to target additional therapeutic groups. Future research efforts could be directed to the different aspects of visual communication in the materials, promoting OTC drugs, because this area has just started to evolve; additional studies would contribute to the development.

REFERENCES


