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"Manifold-Marketing: a new marketing archetype for the information age, applied to the adoption of oral contraceptives and other drugs by end-users"

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“Manifold-Marketing: a new marketing archetype for the information age, applied to the adoption of oral contraceptives and other drugs by end-users”

ABSTRACT

Taking into account the new communication paradigm of Social Media this paper proposes an original marketing archetype for the information age named by the authors as “Manifold-Marketing”. The conducted study explores the contribution of participating in social networks on the Internet for the adoption process of oral contraceptives (OCs) and other drugs by their end users.

Empirical data for this research was collected from a sample of 1162 respondents of a target population formed by Portuguese women, current or potential users of OCs who had reached a level of college education. The results obtained after applying a package of statistical techniques involving descriptive statistics, nonparametric tests and multivariate analysis show that the use of the Internet as well as the participation in the social network Facebook can contribute to the adoption process of OCs. Market segments which are relevant to pharmaceutical marketing were identified based on criteria that associate the information and communication technologies (ICT) with the adoption process of OCs carried out by the consumers themselves. This study also demonstrates that the adoption model and segmentation proposed can be generalized to other markets in the health sector.

Considering the obtained results and the proposed "Manifold Marketing", innovative pharmaceutical marketing guidelines are presented.

Key words: Manifold-marketing, web-marketing, social media marketing, pharmaceutical marketing.

NEW BEHAVIOR REGARDING THE ADOPTION OF DRUGS BY END USERS

This article studies how the Internet and social networks influence the decision to adopt the use of oral contraceptives (OCs) in Portugal on an auto-medication basis, i.e. according to the decision of the end users without a medical prescription. During this investigation there were some very interesting conclusions that were reached about the marketing policies recommended in this information era, leading to the original proposal of a new archetype of marketing designated by "manifold marketing", intended to describe the marketing that's necessary to influence and manage conversations on the Internet, especially in the so-called "social web" (Porter, 2008, pp. 1-32).

On the base of these conclusions, we find the existence of factors that can explain the OCs consumption in Portugal and are not directly related to the medical prescription but are instead related with the use of the Internet and ICT by the end-users of these drugs. With these factors found, we believe that the pharmaceutical marketing of OCs can be improved by the tactical automation of segmentation and positioning practices as well as through innovative online communication policies

Another objective of this study, which is considered to be of extreme importance, was to investigate the possibility of extending to other therapeutic classes the acquired knowledge about the adoption of OCs. The knowledge status about the consumer's behavior and the primary international models of prescription don't allow for a satisfactory explanation of the underlying mechanisms of the consumer's behavior regarding the adoption of specific drugs of certain therapeutic classes (Manchanda & Honka, 2005). This is precisely the situation concerning the therapeutic class of OCs, named "G3A" (Innovaro, 2005), a medication class *sui generis* that is meant to be taken daily during several years by healthy females.

On the other hand, the current consumer is active, well informed and connected to the lastest technologies (Lawer & Knox, 2006) and at the same time the use of the Internet and Social Media is growing worldwide, especially between the youngest generations, the higher social classes and students (Marktest, 2011a). When it comes to the number of social network users in Portugal, figures indicate some 3 million people up to date, which is about 36.8% (*vide* Figure 1) of the 15 year old plus in the mainland country (Marktest, 2011b).

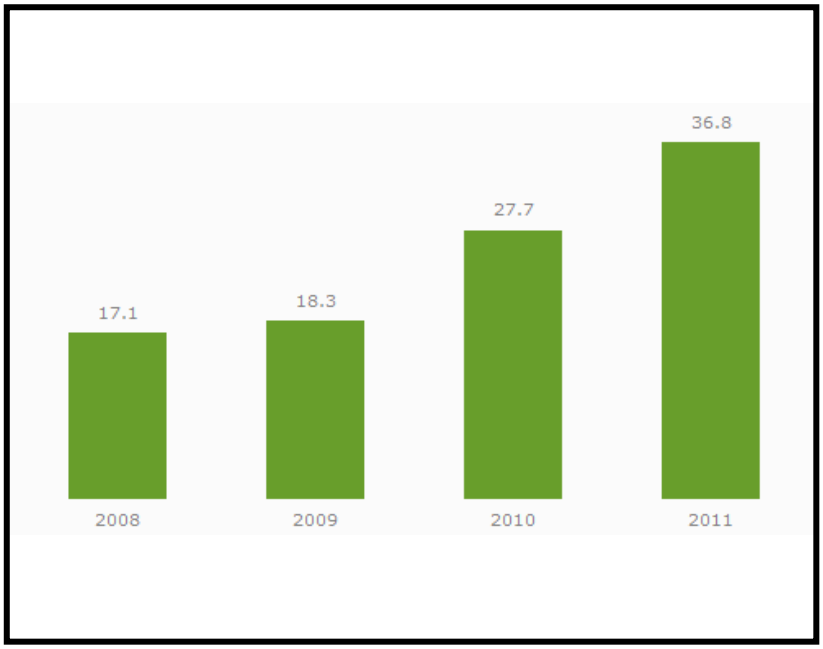


Figure 1 – Portuguese social network users in 2008-2011 (%)
Source: (Marktest, 2011b)

Meanwhile, the Facebook social network is highlighted as the biggest in the world as well as in Portugal, where on the 15th of November of 2011, 4.081460 users were recorded. This means that there is a penetration rate of 78.96% among the Portuguese Internet users (Socialbakers, 2011b). Considering such a use, that occurs mainly within the age group (*vide* Figure 2) where we find the potential OCs consumers, we find it interesting to research the possibility that new variables exist, related to the Internet and Social Media use, that might contribute to the explanation of the OCs adoption in Portugal.

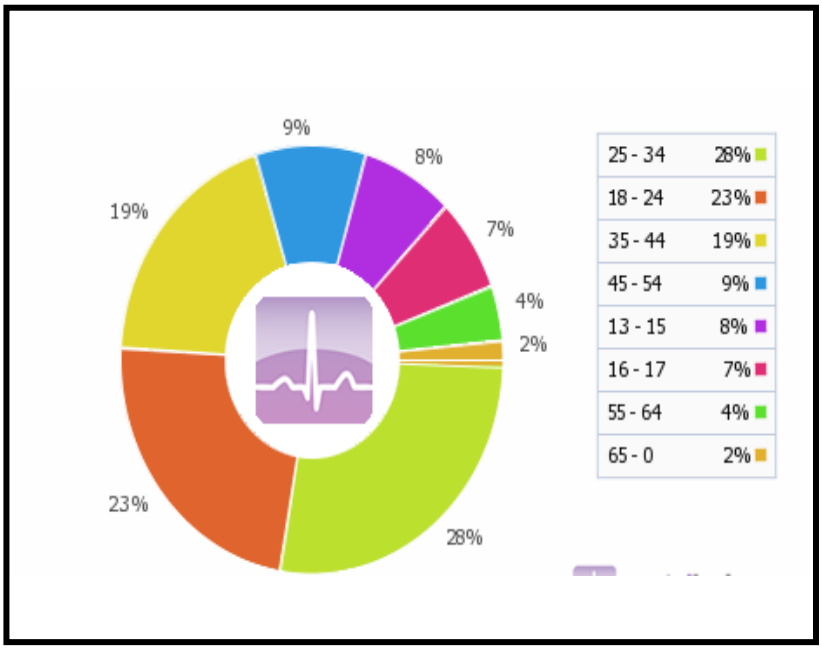


Figure 2 – Distribution of Facebook users (at Portugal in 11/15/2011)
Source: (Socialbakers, 2011b)

While the OCs are officially classified in Portugal as drugs that can only be sold when prescribed by doctors, empiric data referred by several authors (Shah et. Al, 2001), (Potts, 1995), made us realize that the OC's adoption model could resemble the non-prescribed drug's adoption model, also called "over-the-counter" drugs (OTC). Thus, regardless of the analysis of the clinical criteria and the role of prescribers in the adoption of OCs, topics that were not covered by research carried out in this work, it seemed desirable to explore the possibility of the consumption patterns of these medicines being conditioned by self-medication. Besides this, it was planned to see if the Internet use would have anything to do with this adoption process and specifically if this process could be influenced by the use of Social Media.

This way, it was intended to add the resultant contributions of information gathered on the Internet among potential users of OCs that search (or plan to search) on the Internet or participate in social networks to clarify some health doubts, including issues related to the use of these drugs.

A predominantly quantitative research method was elected, to bring out several factors related to: (i) the OCs auto-medication possibility; (ii) the eventual contribution of the Internet and social networks use for gathering and sharing health knowledge; (iii) the eventual contribution of the Internet and social networks use for the adoption process of OCs by the users themselves; (iv) the gathering of research clues about the relevance of such contribution to other drugs and health technologies adoption; (v) the possibility of identifying a segmentation that could be important to the pharmaceutical marketing, based on the role of the ICT when it comes to the adoption process of OCs by end users.

To measure the obtained results, we started to use several descriptive statistics including frequency analysis, central tendency measurements, dispersion measures, charts and correlation analysis. After this preliminary approach, based on the single-varied analysis of the obtained results, we pursued the research work applying non-parametric tests and an array of bi-varied statistical analysis, factorial analysis and cluster analysis aiming to detect explanative patterns about the interaction of variables related to the use of Internet, the participation in social networks and the OCs adoption process by the end users.

With this research, we think we achieved an important and specific purpose: the development of a new approach methodology to the study of the pharmaceutical market that allows taking into account the Internet and Social Media use in the OC's adoption process. Meanwhile, the obtained results demonstrate that this methodology can be exported into other adoption processes in the healthcare niche.

It is thought that the results of this work can be useful in subsequent investigations. This is true both in public health and pharmaceutical marketing terms, aiming to contribute to the definition and implementation of formative and educative strategies which can allow a qualitative consumption improvement in the health niche, as well as an improvement in marketing techniques and practices.

The present study is circumscribed to the research of the following hypotheses (H):

H1: The OCs consumption results not only from medical prescriptions but from self-medication as well;

H2: The Internet use contributes to the OC's adoption process by end users;

H3: The participation in social networks leads to obtaining and sharing information about health;

H4: The participation in social networks contributes to the OC's adoption process by end users;

H5: It's possible to build a generic process extendable to other drugs markets in which it is intended to make use of the ICT as a marketing tool, based on a methodology that was applied to the OCs market.

H6: It's possible to identify a pharmaceutical marketing oriented segmentation, based on criteria that relate ICT to the OC's adoption process by end users.

The data for this research were gathered on-line, resulting from the target-population's replies to an internet based survey. The questionnaires made (pilot and final) were built using a web based tool that allows the construction of on-line surveys, namely the "PLUS" version of the "Survey Monkey" software. The survey's target population was composed of Portuguese women, aged between 18 and 49 years old, who frequented or had concluded a superior education degree.

When it came to questions involving evaluating scales, these were always measured using numbers between 1 and 5, which made it easier to compare the obtained results. The advantages of the Likert scale results are the ease of administration and construction of the survey itself as well as the simplicity in comparing results (Malhotra, 2004).

Through the Internet, it was possible to send a survey to 2237 respondents and to gather a sample of considerable size (n=1196), obtaining data that is thought to be pertinent and trustworthy as it was gathered from individuals that have the desired info for the investigation purpose (Malhotra, 2004).

The main objective of the statistic techniques and strategies adopted in the analysis of the obtained data was to find behavioral patterns, correlations between variables and segmenting criteria that could contribute towards the explanation of the OC's adoption process.

The techniques of descriptive statistics that were used were fundamentally based in charts, graphics, frequency tables and medians. To statistic inference, non-parametric tests were used (Chi-Squared, Kruskal-Wallis and Mann-Whitney). We decided to use multivariable and exploratory statistic analysis techniques like factorial and clusters analysis. With the first one, it was aimed to create factors with those variables that were the most connected to each other, while with cluster analysis it was intended to identify groups of individuals segmented by their similarities. On the multivariable analysis strategy implementation, the following steps were taken as pointed out in Malhotra (2004):

(i) Finding the right factorial structure;

(ii) Show factors that allow the analysis of correlations between the variables and that would lead to an interpretable conclusion;

(iii) Determinate those factor scores that would match each one of the factors of the found solution to each of the individuals;

(iv) Considering the obtained factor scores, make a cluster analysis aligned with the factorial analysis;

(v) Identify types of segmentation that could be useful to pharmaceutical marketing.

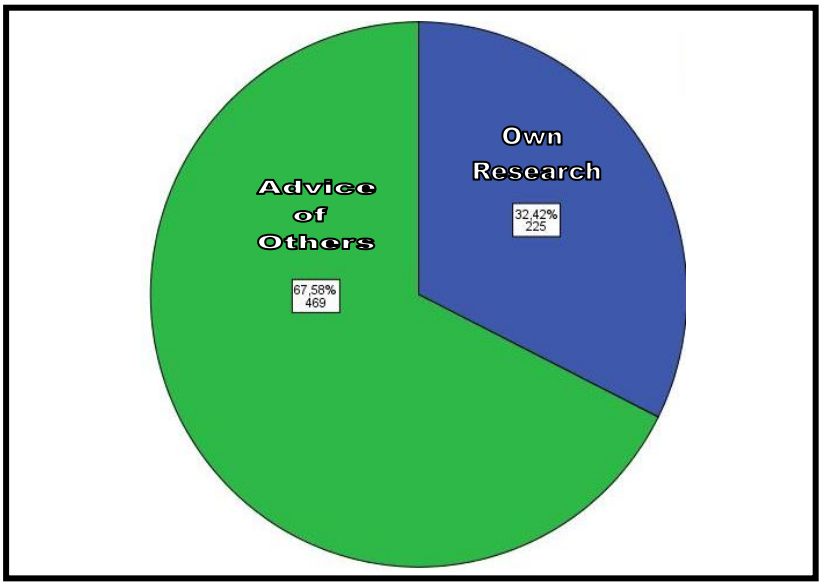
The results presented were obtained using the SPSS software – version 19.

MAIN RESULTS

The results obtained by the surveys analysis can respond in a very satisfying way to the formulated hypothesis.

Related to H1, the attempt was to test if the OCs consumption isn't exclusively the result of medical prescription, but also of self-medication. By observing the results obtained in Q8 (*vide* figure 3) there are clear indications that the OCs consumption isn't motivated solely by medical prescription, but by self-medication as well.

Figure 3 – Q8- Distribution of respondents when it comes to the question about the reason of choosing OCs (n=694).



Related to H2, the intent was to evaluate if the Internet contributes to the OCs adoption process by end users. By observing Q10's results (*vide* figure 4) we can verify that an important percentage of women used the Internet to research about the OCs.

The third hypothesis to be tested (H3) is if the social network participation leads to sharing and obtaining information regarding health topics. To specifically test this hypothesis, we used Q17. About half of the respondents consider that they have already chatted or swapped

information about health on the Internet, or think that they may do so in the future (*vide* figure 5). Hence we confirm H3, establishing that the participation on social networks contributes to obtaining and sharing information about health.

Figure 4 – Q10- Distribution of respondents when it comes to the question whether they use the Internet on the research of OCs (n=224)

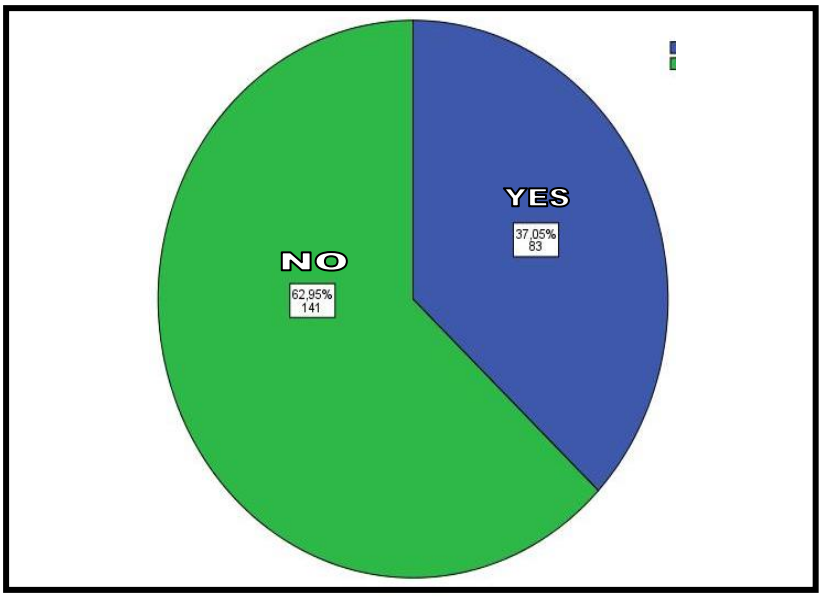
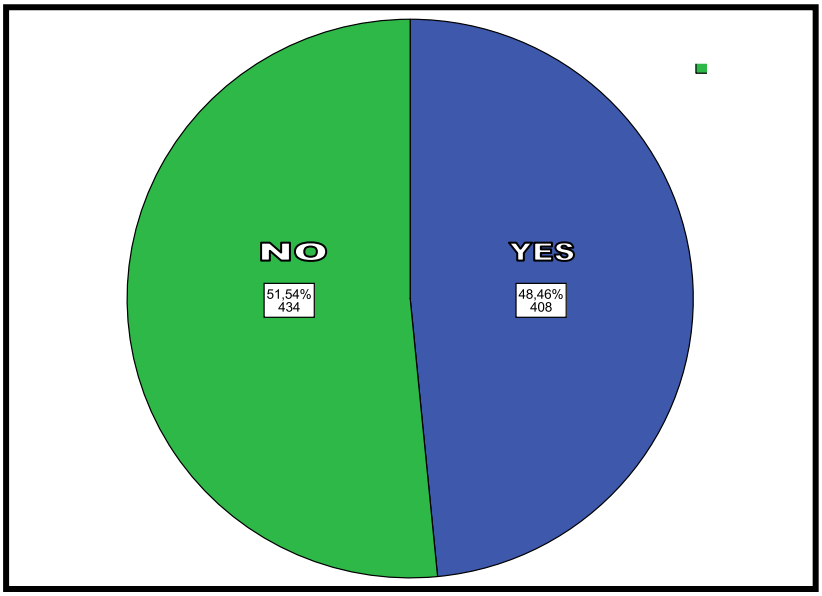


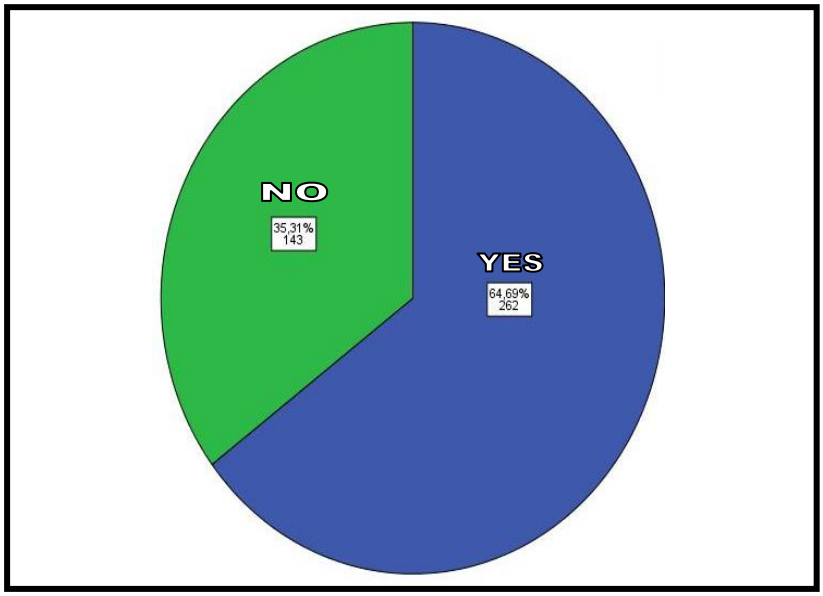
Figure 5 – Q17- Distribution of respondents when it comes to the question whether they chatted or exchanged information about health on the Internet, or if they think they may do so (n=842).



The forth hypothesis being tested (H4) is if the participation in social networks contributes to the process of the OC's adoption by end users. To test this hypothesis, we used Q20. About

two thirds of the respondents that have spoken or swapped information about health on the Internet, or think might still do so, have also swapped information about oral birth control or plan to do it (*vide* Figure 6). The 4th hypothesis in this study (H4) is therefore supported, establishing that participating in social networks contributes to the OC's adoption process.

Figure 6 – Q20- Distribution of respondents when it comes to the question whether they have talked on the Internet about OCs, or if they think they may do so. (n=405).



The fifth hypothesis to be tested (H5) tries to evaluate if it is possible to build a generalist process extensible to other drugs markets in which it is intended to use the ICT for the pharmaceutical marketing, based on a methodology that was aimed to the market of OCs. To test H5 we used factorial analysis by main components. With a KMO =0,871 value, the matrix's factorization may be considered pretty good (SHARMA, 1996), and factorial analysis may be applied. The factor retention criteria with self values (eigenvalue) superior to 1 (SHARMA, 1996) advised the retention of 5 factors. A Varimax rotation was applied, whose purpose was to obtain a factorial structure in which one and just one of the original variables on analysis would be found to be heavily associated with a single factor and not significantly associated with the remaining factors (Malhotra, 2004).

Table 1 – Factorial weights of each item on the 5 retained factors after Varimax rotation.

	Components				
	1,00	2,00	3,00	4,00	5,00
Q14,1 – Rate the importance of this source of information about Oral Contraceptives: **Doctors**	-,22	,13	,10	,34	-,73
Q14,2 – Rate the importance of this source of information about Oral Contraceptives: **Pharmacists**	,03	-,03	,21	,82	,00
Q14,3 – Rate the importance of this source of information about Oral Contraceptives: **Nurses**	,12	,06	,12	,82	,03
Q14,4 – Rate the importance of this source of information about Oral Contraceptives: **Internet**	,30	,38	,07	,38	,60
Q14,5 – Rate the importance of this source of information about Oral Contraceptives: **Family and Friends**	,29	,28	,08	,34	,62
Q15,1 – Rate the importance of this source of information on the Internet about Health: **Search Engines**	,13	,86	,04	,07	-,06
Q15,2 – Rate the importance of this source of information on the Internet about Health: **Social Networks**	,76	,31	,05	,11	-,03
Q15,3 – Rate the importance of this source of information on the Internet about Health: **Video Sharing Websites**	,77	,29	,01	,00	,05
Q15,4 – Rate the importance of this source of information on the Internet about Health: **Portals**	,40	,60	,13	,08	,08
Q15,5 – Rate the importance of this source of information on the Internet about Health: **Chats**	,83	,12	,02	,02	,14
Q15,6 – Rate the importance of this source of information on the Internet about Health: **Blogs**	,74	,26	,06	,03	,17
Q15,7 – Rate the importance of this source of information on the Internet about Health: **Micro Blogs**	,84	,11	,07	-,02	,11
Q15,8 – Rate the importance of this source of information on the Internet about Health: **Wikis**	,36	,60	,20	-,11	,06
Q15,9 – Rate the importance of this source of information on the Internet about Health: **Websites of Public Institutions**	,00	,16	,88	,09	-,01
Q15,10 – Rate the importance of this source of information on the Internet about Health: **Websites of Private Institutions**	,10	,09	,88	,08	,01
Q15.1 – Rate the importance of this source of information on the Internet about Oral Contraception: **Search Engines**	,25	,81	,16	,09	,13
Q15.2 – Rate the importance of this source of information on the Internet about Oral Contraception: **Social Networks**	,82	,26	,06	,11	,05
Q15.3 – Rate the importance of this source of information on the Internet about Oral Contraception: **Video Sharing Websites**	,84	,21	,04	,03	,11
Q15.4 – Rate the importance of this source of information on the Internet about Oral Contraception: **Portals**	,51	,54	,19	,09	,16
Q15.5 – Rate the importance of this source of information on the Internet about Oral Contraception: **Chats**	,86	,12	,03	,07	,17
Q15.6 – Rate the importance of this source of information on the Internet about Oral Contraception: **Blogs**	,79	,25	,07	,08	,17
Q15.7 – Rate the importance of this source of information on the Internet about Oral Contraception: **Micro Blogs**	,89	,11	,06	,05	,13
Q15.8 – Rate the importance of this source of information on the Internet about Oral Contraception: **Wikis**	,45	,58	,28	-,09	,08
Q15.9 – Rate the importance of this source of information on the Internet about Oral Contraception: **Sites of Public Institutions**	,00	,16	,86	,11	-,04
Q15.10 – Rate the importance of this source of information on the Internet about Oral Contraception: **Sites of Private Institutions**	,12	,11	,89	,13	,05

In Table 1 the variables or items with higher weights (≥0,6) are indicated in green, while the acceptable weighted variables (≥0,4 and <0,6) are marked on yellow (MAROCO, 2007), (SHARMA, 1996). By observing table 1, we can state that the questions placed in Q.15 about the importance degree of several information sources on the Internet related to health, which are repeated in Q.16, in this case related to the OCs thematic, have a similar distribution in

the obtained factorial model. Standing before these results, we can state that the information search pattern on the Internet, when related to health, will be similar to the one followed concerning the OCs. The 5th hypothesis is supported on this study (H5), thus establishing that is possible to extend to other drugs and health markets the ICT use methodology meant for the OCs market.

The sixth hypothesis to be tested (H6) evaluates if it is possible to identify a marketing optic segmentation, based on criteria that associate the ICT to the OC's adoption process by women. Two types of segmentation analysis were built, one bi-varied using non-parametric tests (Chi-Squared, Kruskal-Wallis and Mann-Whitney) and another multi-varied using cluster analysis. Both were proven useful and complementary: the importance given to the Internet's institutional sites (Q.15.9; Q.15.10; Q.16.9; Q.16.10) is significantly affected ($p < 0,05$) by the age group (Q.4), with most importance given by the youngest age groups (<30 years old). Meanwhile, a highest "Life time Value" is associated to these younger respondents, whether in OCs or other drug consumption (especially when it comes to OCs use which corresponds to the fertile age). This indicates the pharmaceutical company interest in investing on different pages of their institutional website which should work as landing pages meant to be found by fertile aged women that are in different cycles of consumption and for that reason, research using different keywords. The same is happening in relation to more fragmentized types of presence in the social web which are gathered around, like posts, or even comments to posts. These can of course be found by people who run through social web. It is precisely this that recommends the profusion and diversity of web social presences and justifies, in part, the new proposed "manifold marketing" archetype. On the other hand, search engines (Q.15.1; Q.16.1), have a significant impact on the importance given to them by respondents as a reason to choose OCs (Q.8), particularly by those who use the Internet

for their own research (Q.10). Therefore, we may conclude that there is a similarity in the importance given to general health knowledge research, and to OCs research. It then seems possible to generalize the marketing knowledge application on the Internet as meant to the OCs market, expanding it to other drugs and health related markets.

Cluster analysis was made from the scores that were obtained for each of the resulting individuals of factorial analysis. These scores represent five new continuous variables in the study's database, being as many as the retained factors. Two agglomeration methods were tested (Ward and Average Linkage) and the one with the best results was the Ward method, which allowed identifying clusters that can be useful to an effective marketing segmentation. The Average Linkage method can only separate the sample into a big cluster and a small outlier cluster with no practical meaning. With the aid of a dendogram we can identify 6 clusters with relevance to our study when using the Ward method. The questions with the most relevance to be analyzed and included in our cluster analysis are Q14, Q15 and Q16, because they evaluate in a quantitative way the importance given to the several sources of information available to women, to obtain information on health in general as well as on the OCs adoption process. It was exactly this criterion that lead us to choose these variables as the factorial analysis variables to be used. In Table 2, we can look upon the median of each one of the clusters concerning the questions Q.14, Q.15 and Q.16. In this table, we can identify the variables that are considered to be more relevant, namely: (i) *green cells* referencing the topics in which the respondents attribute a bigger importance (doctors, search engines and public institution sites) (ii) *yellow cells* matching the topics that build the central topics in this thesis (Internet and Social Network use). The cluster analysis performed allowed the effective identification of a set of segments that discriminate behaviors and attitudes of the sample over the role of social networks and the Internet in obtaining and sharing information on general health and oral contraception in particular.

Table 2 – Medians of each cluster regarding the questions Q.14, Q.15 e Q.16.

Cluster Number		1	2	3	4	5	6
Q14.1 - Rate the importance of this source of information about Oral Contraception:	Doctors	1,00	5,00	5,00	5,00	5,00	5,00
Q14.2 - Rate the importance of this source of information about Oral Contraception:	Pharmacists	2,00	2,00	4,00	4,00	4,00	4,00
Q14.3 - Rate the importance of this source of information about Oral Contraception:	Nurses	3,00	2,00	4,00	4,00	4,00	4,00
Q14.4 - Rate the importance of this source of information about Oral Contraception:	Internet	4,00	2,00	3,00	1,00	3,00	1,00
Q14.5 - Rate the importance of this source of information about Oral Contraception:	Family and Friends	4,00	3,00	3,00	2,00	3,00	2,00
Q15.1 - Rate the importance of this source of information on the Internet about Health:	Search Engines	2,00	4,00	4,00	3,00	4,00	3,00
Q15.2 - Rate the importance of this source of information on the Internet about Health:	Social Networks	3,00	2,00	2,00	1,00	3,00	2,00
Q15.3 - Rate the importance of this source of information on the Internet about Health:	Video Sharing Websites	5,00	2,00	2,00	1,00	3,00	1,00
Q15.4 - Rate the importance of this source of information on the Internet about Health:	Portals	4,00	3,00	3,00	2,00	3,00	2,00
Q15.5 - Rate the importance of this source of information on the Internet about Health:	Chats	5,00	1,00	2,00	1,00	3,00	1,00
Q15.6 - Rate the importance of this source of information on the Internet about Health:	Blogs	4,00	2,00	2,00	1,00	3,00	1,00
Q15.7 - Rate the importance of this source of information on the Internet about Health:	Micro Blogs	5,00	1,00	2,00	1,00	3,00	1,00
Q15.8 - Rate the importance of this source of information on the Internet about Health:	Wikis	4,00	3,00	3,00	2,00	3,00	2,00
Q15.9 - Rate the importance of this source of information on the Internet about Health:	Institutional Public Websites	4,00	4,00	4,00	3,00	5,00	5,00
Q15.10- Rate the importance of this source of information on the Internet about Health:	Institutional Private Websites	4,00	4,00	4,00	3,00	4,00	4,00
Q16.1 - Rate the importance of this source of information on the Internet about Health:	Search Engines	3,00	3,00	4,00	2,00	4,00	2,00
Q16.2 - Rate the importance of this source of information on the Internet about Health:	Social Networks	3,00	2,00	2,00	1,00	3,00	1,00
Q16.3 - Rate the importance of this source of information on the Internet about Health:	Video Sharing Websites	5,00	2,00	2,00	1,00	3,00	1,00
Q16.4 - Rate the importance of this source of information on the Internet about Health:	Portals	4,00	3,00	3,00	1,50	3,00	2,00
Q16.5 - Rate the importance of this source of information on the Internet about Health:	Chats	4,00	1,00	2,00	1,00	3,00	1,00
Q16.6 - Rate the importance of this source of information on the Internet about Health:	Blogs	4,00	2,00	2,00	1,00	3,00	1,00
Q16.7 - Rate the importance of this source of information on the Internet about Health:	Micro Blogs	5,00	1,00	2,00	1,00	3,00	1,00
Q16.8 - Rate the importance of this source of information on the Internet about Health:	Wikis	3,00	3,00	3,00	2,00	3,00	2,00
Q16.9 - Rate the importance of this source of information on the Internet about Health:	Institutional Public Websites	2,00	4,00	4,00	3,00	5,00	5,00
Q16.10- Rate the importance of this source of information on the Internet about Health:	Institutional Private Websites	3,00	4,00	4,00	2,00	4,00	4,00

Below is a description of all clusters, each focusing on the most relevant facts for effective marketing segmentation facing the new challenges of pharmaceutical marketing in the information age. It should be noted that the measure of central tendency used as comparison between the clusters was always the median, for two reasons: firstly because it is a set of ordinal variables, and secondly because, in most cases, the present variables have an asymmetric distribution, being then the median the central measure of choice (Malhotra, 2004).

Cluster 1 (1,2%) – This is a very small cluster, which presents atypical results. In this cluster, women don't value physicians (Median=1) and value the Internet as an information source about OCs (Median=4). This cluster presents a median of 3 when it comes to the importance given to social networks (Q.15.2 e Q.16.2), that is the highest value in the sample (together with cluster 5, which is also the biggest cluster). As mentioned, if the reduced dimension of this cluster can lead it to be considered, from the start, as not relevant, we could think that it must be taken into account and monitored in the future, because if its dimension increases significantly, it can lead to the advent of a totally different market segment, that considers the Internet and the ICT of the web 2.0 as a source of determining information in the OC's choice process. This is, after all, a market segment which isn't much permeable to the influence of health professionals like physicians. This group is therefore receptive to online marketing actions related to dynamic interactions on the Internet, namely in the social media and social network ecosystem, with initiatives like chats, video sharing, micro blogs, etc.. This is because in this cluster, the classification of importance attributed to these ICT reaches the highest medians of the sample (varying between 3 and 5).

Cluster 2 (13,6%) – In this cluster, all health professionals, except physicians (median=5), have the lowest medians of the sample (median=2) as sources of information about the OCs. The importance given to the Internet in this cluster is equally low (median=2). This cluster clearly identifies a group of women that attribute, overall, importance to physicians. On other metrics, it presents itself very much in line with the general mean of the sample. Regarding the ICT that are associated with the Internet, the search engines and the institutional websites are considerable valued, both public and private ones (all with medians over 3). In terms of pharmaceutical marketing, the way to interact with this cluster can be to make a "bridge" to fill the gap between the institutional website and the physicians. Therefore, in order to help "cross that bridge", the pharmaceutical company must conduct the content aggregation and Search Engine Marketing (SEM) and carrying out the recommended archetype of "manifold marketing" to be found on-line by this market segment, this time thanks to offering on-line such "multiple clinical faces" (choosing on the social media ecosystem the applications that are suitable for this purpose).

Cluster 3 (26,2%) – In this cluster, all the health professionals present a median over 4, as a source of information on OCs. The Internet as a source of information presents a median of 3. This is the cluster with the lowest percentage of women that use OCs (60,5%), but it also records the highest percentage of such women that make their own research (32.2%). It's also the cluster with the highest percentage of women that don`t take OCs which say that they might search on the Internet for information about this drug. This cluster is the one with the higher percentage (65,6%) of women that say they have chatted on the Internet about OCs or thinks they might do it. About the ICT associated with the Internet, this cluster values the search engines and the public/private institutional websites (all with medians over 4). Regarding the importance of social networks as a source of information, the median of this

cluster is only 2. However, when questioned about the relative importance of several websites and social networks in the Internet (Q.19 e Q.22), these respondents attribute a higher percentage to Facebook (median=3), and, from all platforms for sharing information, this classification only has parallel in the case of the platform MSN Live Messenger (median = 3) and only when the question is specifically directed to its importance as a source of information about OCs (Q.22). This is a relevant cluster when considering the importance of the Internet, whose respondents prefer search engines and institutional sites as a source of health care and information about OCs. With the lowest percentage of women taking the OCs this cluster has the biggest number of potential consumers. Obviously this is important information for the pharmaceutical marketing. Therefore, we think that the pharmaceutical company should undertake content aggregation and SEM, to be found online by this market segment, doing the proposed "manifold marketing" especially to turn its on-line presence into a preferred destination in each step of the consumption process followed by the potential consumers of OCs that are in this cluster.

Cluster 4 (11,5%) – This is the cluster that attributes to Internet the least importance (median=1) and most values the health professionals (median over 4), as a source of health and information about OCs. It is also the cluster with the lowest percentage of women (25%) that doesn't use OC and may search information about these drugs on the Internet. Being the cluster with the lowest percentage of women who say they chat online about health or think they might do so, it represents a group of women that, when being objectively questioned about the Internet as a source of information about OCs, attribute to this possibility an importance almost null, a fact that is reflected consistently throughout the answers to several questions. Obviously, this cluster isn't relevant to any online marketing strategy. Therefore,

one can understand that about 10% of the target-population on the present study is virtually insensitive to the Internet use as a source of information about OCs.

Cluster 5 (28,4%) – This cluster is the most relevant in terms of dimension and for this group of respondents the health care professionals are highly important as a source of information about OCs (median over 4). The Internet's global classification as a source of information is also considerably important (median=3), being that every ICT characteristically inherent to Web 2.0 presents medians equal or over three. A fact that is considered to be important in terms of pharmaceutical marketing is the fact that this cluster exhibits not only the highest median to social networks, as it presents a higher percentage than the average of the total number of clusters when the reason for the choice of OCs is the "advice of others." Comparatively to the others, this cluster is also the one where the highest median is found (with the exception of cluster 1) to the questions that are associated with the importance of "family and friends, chats and micro-blogs, as sources of information regarding the OCs. This cluster presents the second higher percentage of respondents that points out the "advice from others" as a reason to choose the OCs (81,5%), as well as the highest percentage of respondents that say they have already chatted or might come to chat about OCs on the Internet (69,8%). Exception made to cluster 1 (an atypical group but maybe premonitory) this group is the one that attributes the most importance to the Internet platforms that are associated with the sharing of information among users, both on health and on OCs. Therefore, the respondents of this group seem to prefer dynamic interaction and information sharing on the Internet taking as a resource the new web 2.0 communication platforms. This possibility is witnessed by the fact that, comparatively with the other clusters, the respondents in this group attribute more importance to social networks and to the advice of others in the adoption process of the OCs. Therefore, one can conclude that the importance given by the

respondents to “advice of others” (when associated to a median equal or over 3 in what concerns the importance of the Internet as a source of information about OCs), is a decisive factor regarding the valorization of social networks for sharing information online about the OCs, whose use can contribute to the decision process underlying the choice of these drugs. Facing the obtained results in this cluster, we think that the pharmaceutical marketing efforts should be aimed towards the participation in social networks in the moulds established by the new archetype of “manifold marketing”. Meanwhile the platforms to those interactions should be provided by the pharmaceutical company in a discrete way. This approach is recommended because these respondents don’t want to embark in a type of investigation that is guided by the “seals” of institutions such as the pharmaceutical companies, but wanting instead to base themselves on the traditional clinical dirigisme as well as in chatting to get information from their peers, including via the Internet. Therefore, this is the cluster that is considered to be the most interesting when implementing social media marketing strategies.

Cluster 6 (19,11%) -: The results for this cluster shows a high degree of importance given to healthcare professionals as a source for information about OCs (median over 4). The classification of the importance of the Internet as a source of information is very low (median=1), being that only institutional websites (public and private) present a relevant median (always equal or over 4). This is the cluster in which the “advice of others” has the highest percentage as a reason to choose OCs. However, taking into account the low medians associated with the Internet and social networks as a source of information about the OCs, the “advice of others” mentioned by these respondents comes from health professionals (because the median of the social networks, family and friends as a source of information for the OCs equals 2) and not from dynamic interactions on the web. Meanwhile, this cluster demonstrates that, even though there are respondents that attribute a small importance to the

Internet as a source of information, an exception is opened for public and private institutional websites, which probably are seen by the inquiries in this cluster as being a credible source of information in the Internet when it comes to the OC and health in general. So, in pharmaceutical marketing communication terms, the best way to interact with this cluster will be to increase the probability of getting the institutional website found. This is done by aggregating content and to perform SEM. However, as it was already mentioned, being the required investment almost null to multiply the marketing effort in several Internet platforms (the marginal cost is null when duplicating online marketing efforts), the return on investment on the other platforms might prove to be advantageous as well.

In general terms, we should refer that the demographic criteria related with the age group wasn't responsible by significant statistical differences between the clusters. On the contrary, concerning the behavioral parameters connected with the Internet, the formed clusters clearly show the existence of OCs consumers (current and potential) which have different attitudes and behaviors facing the Internet and the ICT that are associated to web 2.0 (e.g. social media platforms) confirming therefore the need to formulate appropriate strategies for each of the existing market segments. Finally, we can state that the results show the existence of a substantial amount of self-medicating with OCs, as well as the fact that using the Internet and social platforms like Facebook contributes to the adoption process of these drugs by their end-users. This conclusion may, still, generalize itself to the adoption process of other drugs, since the behavioral patterns of OCs consumption is similar to those shown when the thematic is healthcare consumption in general. When it comes to identifying pharmaceutical market segments, taking into account some criteria that associate the ICT and the adoption process of OCs by the women that use them, we can conclude that this segmentation is relevant and also that it can be generalized to other drugs markets. Thereby, we conclude that the hypotheses tested in this empirical research were all confirmed.

PHARMACEUTICAL MARKETING CONCLUSIONS

Facing the obtained results in this investigation, it is possible to conclude the following:

There is a significant number of internet users and social network users that point out reasons other than the medical advice as a prime cause of their choice of OCs. This fact leads us to believe that physicians do not always have the main role in this drug's adoption process.

The use of the Internet contributes to the adoption process of OCs by the end users. One may also infer that this reality can go on happening because a significant majority presents the intention to search or obtain medical information on the Internet, especially through search engines and institutional sites – private and public.

Participation in social networks leads to obtaining and sharing health related information, as well as contributes to the process of adoption of OCs, being that Facebook was the only social network considered to be relevant in this respect.

When it comes to health in general, we can state that the consumers search pattern is identical to that followed on adoption process of OCs. Being so, from the pharmaceutical marketing point of view one can conclude that there is a similarity between the role and the importance given to the different technological platforms in both cases. Thus, it is wise to take the methodological basis used on the market of OCs and use it to other "product/market" binomials of the health sector.

The obtained results are truly important in the optic of pharmaceutical marketing, advising a "manifold marketing" policy on the social web, in which communication is based in educative strategies in the social media, namely through content that can elucidate the end-consumers of OCs and other drugs. This endeavor works best with inbound marketing initiatives.

We can identify different attitudes and behaviors of the social networks users, and this can be directly applied to the OCs market, as well as the general conclusions which are relevant to be used in other markets of the health sector.

Therefore, a first segment (cluster 5), that is the most relevant in terms of size, embraces the users that value dynamic interaction and sharing on the Internet, taking as a resource the new web 2.0 communication platforms. The pharmaceutical marketing effort headed to this cluster must aim to social network participation, emphasizing the creation of “posts” and their comments, not forgetting about the use of certain network functionalities, like chat and micro-blogging.

The second most important cluster (cluster 3) attributes a significant relevance to the Internet, using search engines and institutional sites as preferred platforms to search information about OCs and other drugs. This is the group with the largest number of potential consumers of OCs which is obviously important in terms of pharmaceutical marketing. When it comes to this cluster, the marketing effort should be based on the aggregation of content and SEM activities, aiming to capture the online attention of this market segment. This effort is also important to assure the proposed "manifold marketing".

A third cluster (cluster 6), attributes high importance to all healthcare professionals as a source of information and little importance to the Internet, being that only the public and private institutional websites are exceptions. The most suitable procedure in this case is to increase the likelihood of an institutional website be found online, raising their conspicuity on the web.

A fourth cluster (named cluster 2) clearly identifies a group of users that values above all the physicians, giving a low weight to the Internet. However, with regard to the ICT and the Internet, this group values search engines and institutional websites, both public and private. Therefore, in terms of pharmaceutical marketing communication, we think that the best way

to interact with this cluster is make a "bridge" out of the institutional website aiming to help these consumers to find their way to physicians.

Another cluster was identified (cluster 4) grouping the users that don't talk on the internet about health, and don't even intend to do it. This is a situation that is characterized by insensitivity towards the use of social networks as an information source about OCs, not being at all relevant to the plotting and implementation of marketing strategies that involves ICT.

A final cluster (cluster 1) presents atypical results. In this group of reduced dimensions, users don't value the physicians but the Internet as an information source about OCs. This is a segment that is very vulnerable to online marketing procedures that take into account the dynamic of the social media ecosystem, including interactions via chats, video sharing, micro-blogging, etc..

Lastly, we can conclude that only a communication multiplied in time, and space-form ("manifold marketing"), can gaze upon the pharmaceutical marketing challenges that are placed by the huge social web which is currently hosted on the Internet.

REFERENCES

INE. (2003). *Taxa de Fecundidade Geral*. Retrieved Fevereiro 3, 2011, from Inst. Nac. Estatística: http://metaweb.ine.pt/sim/conceitos/Detalhe.aspx?ID=PT&cnc_cod=228&cnc_ini=24-05-1994

Innovaro. (2005). *Systemic Hormonal Contraceptives: Schering goes from strength to strength*. Retrieved Julho 14, 2011, from Innovaro pharmalicensing: http://pharmalicensing.com/public/articles/view/1159434559_451b913fa3450;

Lawer, C., & Knox, S. (2006). Customer advocacy and brand development. *Journal of Product and Brand Management , 15 (2)*, 121-129;

Malhotra. (2004). *Marketing Research an applied orientation.* Nova Jersey: Pearson Prentice Hall

Manchanda, P., & Honka, E. (2005). The Effects and Role of Direct-to-Physician Marketing in the Pharmaceutical Industry: An Integrative Review. *Yale Journal of Health Policy, Law, and Ethics, 5* , pp. 785-822;

Marktest. (2011a, Novembro 8). *Utilização de Internet aumentou 9 vezes em 15 anos*. Retrieved Novembro 15, 2011, from Grupo Marktest: http://www.marktest.com/wap/a/n/id~1889.aspx;

Marktest. (2011b, Novembro 8). *3 milhões de portugueses acedem a redes sociais*. Retrieved Novembro 15, 2011, from Grupo Marktest: http://www.marktest.com/wap/a/n/id~1889.aspx;

Maroco, J. (2007). *Análise Estatística- Com Utilização do SPSS.* Lisboa: Sílabo.

OECD. (2008). *The Future of the Internet Economy* (p. 18). Paris: DSTI;

Porter, J. (2008). *Designing for the Social Web.* Califórnia: New Riders;

Potts, D. (1995, Dezembro). Safety implications of transferring the oral contraceptive from prescription-only to over-the-counter status. *Drug Safety , 13(6)*, pp. 333-337;

Shah, M., Al-Rahamani, E., Behbehani, J., & Radovanivic, Z. (2001). Over-the-counter use of oral contraceptives in Kuwait. *International Journal* ;

Sharma, S. (1996). *Applied Multivariate Techniques.* Nova Iorque: John Wiley & Sons;.

Socialbakers. (2011b, Novembro 15). *Portugal Facebook Statistics*. Retrieved Novembro 15, 2011, from Heart of Facebook Statistics: http://www.socialbakers.com/facebook-statistics/portugal/last-week#chart-intervals