

Project report

eHealth Trends across Europe 2005-2007

WHO/ European survey on E-health
Consumer Trends

Hege K Andreassen, Tove Sørensen, Per Egil Kummervold

Title: eHealth trends across Europe 2005-2007

NST-report: 09-2007

Project manager: Tove Sørensen

Authors: Hege K Andreassen, Tove Sørensen, Per Egil Kummervold

ISBN: 978-82-92092-87-3

Date: 2007-09-01

Number of pages: 12

Keywords: Health, Internet, e-health, survey, health consumers, Europe

Summary: *Background:* A survey on patients' and health consumers' use of e-health services is an opportunity to monitor to what degree e-health practices are becoming important in the everyday lives of European citizens. Further, the survey is a tool for policy makers when developing future health services.
Methods: A representative sample of seven European countries was interviewed by telephone. Two surveys were conducted with 18 months interval. The first survey was conducted in 2005, the second in 2007.
Results: A total of 7,934 interviews were conducted in 2005, and 7,022 interviews in 2007. The number of Internet health users increased from 44 % in 2005 to 54 % in 2007. The growth in the use of Internet for health purposes is found in all seven countries participating in the survey
Conclusion: The use of the Internet for health purposes is increasing in Europe. The digital divide is reflected in the field of e-health, as health related use is more frequent in the northern European countries, followed by eastern and southern Europe respectively.

Publisher: Norwegian Centre for Telemedicine
University Hospital of North Norway
P.O. Box 35
N-9038 Tromsø
Telephone: (+47) 77 75 40 00
E-mail: info@telemet.no
Web: www.telemet.no

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Table of contents

1.	Introduction	7
2.	Methods	8
3.	Results	8
4.	Discussion.....	10
4.1	Conclusion	11
5.	References.....	12

1. Introduction

Although European populations have never been healthier, health care systems are scrambling to effectively cope with demand. There is little knowledge on how e-health will influence health care delivery. The potential of using the Internet and other electronic media in health promotion and health care seems promising, given the large group of people that can be reached, fast and at low costs. However, there are important issues to take into consideration when this technology is adopted in health. Although Information and communication technologies (ICT) have become widely available, accessible, and affordable, a cultural and social gap can be identified between the Internet users and the non-users (Kreps, 2005). This divide, frequently attributed to the lack of infrastructure, computer equipment, incentives, or skills, affects the society as a whole. Through the use of mass media, like the Internet, there is also the potential of creating needs in the population, a well known strategy in marketing and advertising. We should acknowledge that these mechanisms also might have unintentional consequences within health. The problems related to the medicalization of modern society (Conrad, 1992; Illich, 1976) should therefore be of vital interest to researchers and policy makers interested in e-health.

The 'WHO/European e-health consumer trends survey' supports the work of the European Commission, based on the Action Plans for a European e-health Area. The project focuses on the 'new patients' or consumers and the digital divide in Europe, as the Internet is becoming an increasing source of health information. The focus on patients and health consumers ensure the focus on public health issues in the e-health area, and gives an opportunity to monitor to what degree e-health practices are becoming important in the everyday lives of European citizens.

The project includes two surveys, conducted with 18 months interval in seven European countries; Denmark, Germany, Greece, Latvia, Norway, Poland and Portugal. The results from the first survey have been analyzed and presented national and International journals (H. Andreassen et al., 2007; H. K. Andreassen, Wangberg, Wynn, Sørensen, & Hjortdahl, 2006; Bujnowska-Fedak, Staniszewski, & Steciwko, in press; Chronaki et al., (in press); Dumitru et al.(in press), Pudule, Grinberga, Velika, Gobina, & Villerusa (in press); Santana & Pereira, 2007; Staniszewski, Bujnowska-Fedak, & Steciwko, (in press); Voss & Ravn, 2007). This report present the preliminary results of the main trends in health related Internet-use 2005-2007.

The project is co-funded by the Program of Community action in the field of Public Health (2003-2008) of the Health and Consumer Protection Directorate-General of the European Commission.

2. Methods

Seven European countries were selected to run a population survey on the use of the Internet for health purposes. The countries were Norway, Denmark and Germany in northern and central Europe, Latvia and Poland in eastern Europe and Greece and Portugal in southern Europe. A representative randomised sample was made in each country, pre-stratified by age and gender. The survey was conducted twice in each country, in October-November 2005 and in April-May 2007. The survey questionnaire was developed in June 2005 by a research team representing all countries. The questionnaire was translated to the national languages using a dual focus approach (Erkut, Alarcón, Coll, Tropp, & Garcia, 1999). Interviews were conducted by telephone (CATI) by professional poll-agencies. The telephone penetration was estimated to be close to 100 % in Norway, Denmark, and Germany. In Poland it was estimated to be 64%, in Latvia 92%, in Greece 82 %, and in Portugal 54%¹. Mobile phone numbers were included in Norway, Denmark, and Latvia.

The respondents were asked how frequently they used the Internet, and how frequently they used it for health purposes. The variables were recoded into Internet-users versus non Internet-users, and Internet health-users versus non Internet health-users.

For all analysis the SPSS 12.0 Data program was used.

3. Results

A total of 7,934 interviews were conducted in 2005, and 7,022 interviews in 2007². In the total sample the number of Internet health users increased from 44 % in 2005 to 54 % in 2007 (from 71 % to 83 % of the Internet-users). The growth in the use of Internet for health purposes is found in all seven countries participating in the survey, both in the total national samples (Tab 1), and in the sub-samples of Internet-users (Tab 2). However, the differences between northern Europe (Norway, Denmark and Germany), southern Europe (Greece and Portugal) and eastern Europe (Poland and Latvia) remain significant (Tab 1). This applies in the total sample as well as in the sub-sample of Internet users (Tab 2).

¹ Source: E-communications Household survey Eurobarometer 274, Fieldwork: November-December 2006, Publication April 2007

² Sampling continued until we had approximately 1,000 completed interviews from all countries, except Portugal where 2,000 interviews were conducted in 2005, as health-related Internet use was expected to be low. As this proved not to be the case in the first survey, the Portuguese sample were given the same size as the others in 2007.

Table 1: eHealth trends by country. 2005-2007. Percentages of total populations with (95% CI)

Country	Count (N) 2005/ 2007	Internet users			Internet health users		
		2005 % (CI)	2007 % (CI)	Relative Growth %	2005 % (CI)	2007 % (CI)	Relative Growth %
Denmark	960/ 1021	81 (78-83)	87 (85-89)	7	62 (59-65)	72 (69-74)	16
Norway	972/ 1001	80 (78-83)	88 (86-90)	10	59 (56-62)	67 (64-70)	14
Germany	974/ 1000	69 (66-72)	65 (62-68)	-6	49 (45-52)	57 (54-60)	16
Latvia	1000/ 1000	53 (50-57)	67 (64-70)	26	35 (32-38)	47 (44-50)	34
Poland	1027/ 1000	53 (50-56)	67 (64-70)	26	42 (39-45)	53 (50-56)	26
Greece	1000/ 1000	42 (39-45)	47 (44-50)	12	23 (20-26)	32 (29-35)	39
Portugal	2001/ 1000	49 (47-52)	52 (49-55)	6	30 (28-32)	38 (35-41)	27

Table 1. The growth in the use of Internet for health purposes by total count and percentage. The change is given in relative percentage for the two groups; Internet users and Internet for health users.

**Table 2:
eHealth trends among Internet-users, by country 2005-2007. Percentages of Internet users with (95% CI)**

Country	Count (N) 2005/ 2007	Internet health users		
		2005 % (CI)	2007 % (CI)	Relative Growth %
Denmark	777/ 889	77 (74-80)	82 (80-85)	6
Norway	778/ 880	74 (71-77)	76 (73-79)	3
Germany	670/ 649	71 (67-74)	87 (85-90)	23
Latvia	534/ 667	65 (61-69)	70 (67-74)	8
Poland	545/ 667	79 (75-82)	80 (77-83)	1
Greece	422/ 472	54 (49-59)	68 (64-72)	26
Portugal	988/ 523	61 (57-64)	73 (69-77)	18

Table 2. The growth in the use of Internet for health purposes in the sub-samples of Internet-users.

4. Discussion

The use of the Internet for health purposes is growing in all seven countries included in the study. More than half of our sample, 54 % of the total population has accessed health information on the Internet. This represents a total of 83 % of the Internet users. These figures show that the European trends on Internet for health are parallel to those in the US. In the US, the number Internet-users having used the net for health purposes, was about 80 % in October 2006 (Fox, 2006).

As expected, the northern European countries are topping the list of active Internet health users. The second most active health users are the east Europeans, where as the southern European population is less active. When comparing 2005 and 2007 results, it becomes clear that the differences between northern, southern, and eastern Europe remain significant.

The largest relative growth of Internet health users is, however, found in eastern and southern Europe, meaning that we observe a tendency that the digital divide might be slightly diminishing in the field of eHealth. The growth in health related use of the Internet seems to be especially strong in eastern Europe, hence it is worth to note that the number of Internet health users in Poland is almost as high as the average was in northern Europe 18 months ago.

There is a large relative growth in health use among Greek and Portuguese Internet users. One explanation of this might be that the Internet users in these countries were more dominated by early adopters in 2005, and that the typical early adopter might not be particularly interested in health matters, as the early adopters are characterized as young men with few health problems and no family responsibilities. This might indicate that the use of the Internet for health purposes will develop as usage spreads from the early adopters of the Internet, and becomes common in the general population. We expect the trends in the northern European countries to be indicators of the future trends of Europe as a whole, as general use of the Internet is becoming part of the everyday activities of more and more Europeans, like it is already for most North-European citizens.

When comparing across countries, one should keep in mind that it is a limitation of this study that telephone penetration varies from 54 % through 98 % in the countries studied, as we conducted all interviews by telephone.

We have found rather unexpected results of Internet-usage in Germany, in particular in the high increase in health related Internet usage among Internet-users (tables 1 and 2). We are in the process of analysing the results more thoroughly and will especially seek possible explanations for these results.

Nevertheless, the divide running across Europe seems to be firm, as differences between countries and regions remain significant over the whole period. As social disparities in health seems to be overlapping with the digital divide (Wangberg et al., Submitted article), this knowledge should be taken into consideration in future strategies and action plans for e-health.

4.1 Conclusion

The use of the Internet for health purposes is increasing in Europe. The digital divide is reflected in the field of e-health, as health related use is more frequent in the north European countries, followed by eastern and southern Europe respectively. We observe a tendency that the digital divide across Europe might be slightly diminishing in the field of eHealth. Consequently the Internet should be considered an important tool for policy makers shaping the future health care service. However, it will be crucial to consider carefully how to exploit the media, in order not to consolidate or create new inequalities in health in Europe. In this respect there is a need for further studies in this field, focusing on which kind of health services that might be provided through the Internet, and the characteristics of target group that could benefit the most of Internet-based health services.

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