

Characterising the Health Information Consumer: An Examination of Digital Television Users

PAUL HUNTINGTON, DAVID NICHOLAS, PETER WILLIAMS AND BARRIE GUNTER
City University, London, United Kingdom

Using questionnaire data from digital television subscribers, links are established between the information sources used and the characteristics and interests of users. The research establishes that groupings can be made and identifies user groups most likely to use each source type. Four groups of users are identified and described: active traditional infor-

mation users, passive traditional information users, electronic isolated users and electronic sociable users. The research forms part of an ongoing research project, which has, as part of its aim, the task of identifying particular users with the information sources that may be most appropriate for them.

Introduction

The government of the United Kingdom is set on employing the whole range of digital information platforms to expand the provision of health information to the general public. The policy document *Information for Health*, for example, is underpinned by the notion that “access to the right information at the right time is a crucial ingredient of modern healthcare” (NHS information Authority 1998). The major NHS Direct initiative, resulting from this thinking, employs a battery of information services, such as the Web (NHS Direct Online), telephone ‘hotline’, touch-screen kiosks and digital interactive television. No doubt mobile phones will not be far behind. Behind all these initiatives lies the presumption that the very act of providing people with information leads to a better health outcome, although this could, of course, simply mean improving the dialogue between patient and health professional, which might then lead on to better treatment. Studies have, indeed, shown that, written information, for ex-

ample, can increase patient compliance with their general practitioner’s (GP) instructions and so help the healing process (Arthur 1995; Ley 1982), and that information leaflets contribute to better health outcomes (Greenfield *et al.* 1985; Mazzuca 1982)

Targeting information to particular groups of user, rather than broadcasting it to an amorphous ‘public’, is an important goal for the NHS (National Health Service), indeed, all health information providers. The study described here constitutes a first step towards identifying health user groups by categorising people according to the type of information source used. Little research has been carried out on characterising consumers by choice of information sources and the research reported here addresses this gap and identifies groupings based on user’s rating of health information source by importance. It is one of a number of studies being undertaken as part of a research project looking at the impact of digital health information provision on the consumer, conducted on behalf of The Department of Health (UK). [1]

Professor David Nicholas is Head of Department, Department of Information Science, City University, Northampton Square, London EC1V 0HB. Tel: +44 (0)20-7040-8381/3. Fax: +44 (0)20-7040-8584. <http://www soi.city.ac.uk/is/research/ciber/>; <http://www soi.city.ac.uk/~nicky>; <http://www-digitalhealth soi.city.ac.uk/isrg/doh.htm> E-mail: nicky@soi.city.ac.uk

Aims, objectives and scope

The particular aim of the paper is to characterise health users by information source preference and further to identify the characteristics of users most likely to use each information source grouping. With the sheer size and heterogeneous nature of the general public, such data are badly needed so that information providers can better target their dissemination strategies.

The data used to explore the relationship were obtained from subscribers to a cable television service (Telewest), which had just recently introduced a health digital television channel (Living Health). Flextech's Living Health Channel, distributed by the cable company Telewest to 38,000 of its Birmingham subscribers, was the first broadcasting service to provide interactive health information to the consumer. The Living Health interactive channel is essentially a content database (mostly text) covering a wide range of health topics largely adapted from NHS Direct Online, although supplemented by content from other suppliers (e.g., updated daily news bulletins; medicines and services directories; public health alerts).

Literature review

A wealth of literature has accumulated on health information needs, although this has been almost exclusively concerned with those related to people with specific ailments – not the general public at large. Kai (1996), for example, examined 'disadvantaged' parents' difficulties and the information needs that arose in coping with acute illnesses in their pre-school children. Subjects stressed the need for a wide variety of information, and 'emphasised the importance of this being accessible' in terms of ease of understanding. They learned more 'about specific illness,' from 'the media, parenting magazines, television dramas and publicity campaigns' than from doctors or the medical literature.

Coulter (*et al.* 1998) explored patient information needs in the context of an evaluation of information services available to them. The research elicited twelve specific needs, as identified by patients themselves. Those that would be appropriate for mediation via remote electronic or paper based means included:

- gaining a realistic idea of prognosis,
- making the most of consultations,
- learning about available services and sources of help,
- identifying self-help groups, and
- preventing further illness.

In a qualitative study of GP patients, not related to a particular condition, that was undertaken as part of the present research, Williams *et al.* (2001) identified the following information needs of a sample of women between 55–74 (this group having been identified by log analysis as low users of a health information kiosk) who were at the surgery for treatment. These included:

- to take prescribed medication successfully
- to understand/provide reassurance about the condition and its severity
- to cope with the condition
- to understand/provide reassurance about the treatment of the condition
- to help make a treatment decision
- to deal with or challenge a doctor

Pinder (1990) developed a typology of a health information seeker from her study of how sufferers and carers coped with the onset and development of Parkinson's disease. These were 'seekers', 'weavers' and 'avoiders'. The former sought as much information as possible, and used it as a central weapon in their strategies to cope with the disease. Weavers sometimes sought information, and were selective about that which they took on board. Avoiders coped on the assumption that 'the anxiety of not knowing was preferable to having their ... fears about the condition confirmed.' Leydon *et al.* (2000) also found some reluctance to imbibe information, in their study of cancer patients.

It is harder to assess the information needs of those not immediately affected by illness – i.e. members of the public who may require health information for general uses unrelated to specific conditions. However users may have a curiosity or general interest to stay healthy or an interest to look healthy.

Some work has been carried out on general seeking and use of electronic information. Cyber Dialogue (2000), for example, found that approxi-

mately half of all Internet using health information seekers advised a family member or friend to see a doctor, changed their exercise or eating habits or made a 'positive' decision related to their health treatment. A rather mixed bag of information need is shown in these results, with seekers looking for information on behalf of others, to improve their general health or to decide on the next steps they should take with regard to a current condition. Many others joined an illness support group after visiting a disease-specific web site. Some work has been carried out on the impact of the Internet on such specialist online groups. Gann (1998) reports, for example, that participation in these fora focused around "peer support and sharing of information on treatment advances, clinical trials etc."

Nicholas et al. (2001) in a study of health outcomes found that people used an Internet health site to be better informed and to help change the way they felt about a condition and this was particularly true for those searching on someone else's behalf. This implies that users may be using information for peace of mind and reassurance – as the research by the current writers (Williams et al. submitted) cited earlier also found.

As with much else on the web, it is often commercial companies that are leading the way in usage research, albeit in a fairly superficial way and with commercial rather than altruistic or academic ends. One interesting study looking at online health information seeking has been that carried out by the Boston Consulting Group (Boston Consulting Group 2001, Poensgen and Larsson 2001) with European health consumers. Their researchers found that users tend to have a focused and deep interest in information only about their specific condition or disease. They do not regularly surf the Web for *general* health-related material, but want sites offering specific information, and show little interest in using the Web to obtain general health related information or products. Those more actively involved in their diagnoses and treatment decisions are more likely to use the Internet as a resource for information.

The current study was based on a survey of digital cable television subscribers who were given access to an interactive health information service that provided text-based information via users' television screens at home. The survey questionnaire asked users for their opinions about this

new interactive health information service and invited them to give further background details about themselves and other health information sources.

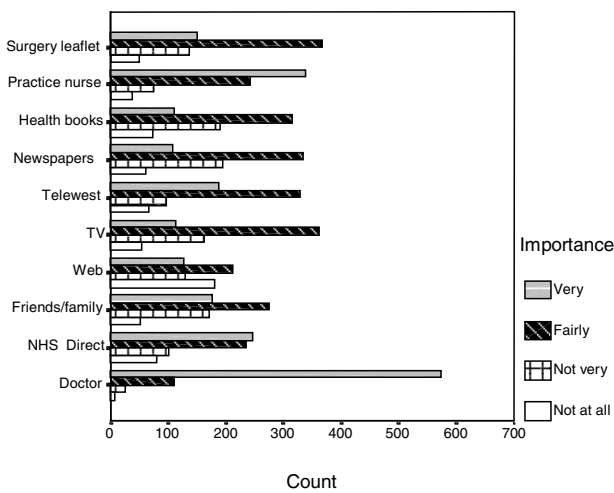
Methods

Data were obtained from a postal questionnaire sent out with literature promoting the "Living Health" channel. This was sent to all potential Telewest Birmingham subscribers, comprising approximately 38,000 households. Seven hundred and twenty three were returned and analysed, of these 496 (69%) provided postcodes. More females (53%) responded to the survey than males (46%) and those aged between 36–45 (24%) and 26–35 (22%) proved to be the most responsive age groups, though there was a good age spread among respondents as a whole.

The questionnaire was designed to obtain responses on the use and non-use of digital television for health information, specifically in regard to Living Health. Furthermore, it asked for personal information details as well as asking users to rank the importance of a variety of other sources for health information. This paper focuses on part of the questionnaire – the user's ranking of health information sources. Factor analysis is used to identify possible types of users identified by their selection of the various information sources. Use is also made of regression analysis to examine if any variable can be identified as determining the user's choice of information source.

Questionnaire responses were supplemented by and cross-referenced to geo-demographic data. These data were sourced from UpMyStreet, [2] a leading digital local area information resource in the UK created by a Digital Media consultancy. Data were collected by entering location postcodes into a search area and extracting the data from the returned pages. For all the data from UpMyStreet, except location house price and Acorn profile (see below), variables were pre-categorised into three groups: high, medium and low, with little explanation of the categories. For example the variable 'Locations likely to have mortgage homeowners' was pre-grouped into three groups: areas having a high likelihood, an average likelihood and a low likelihood. ACORN is a geo-demographic classification of residential

Figure 1: Importance of various sources of health information



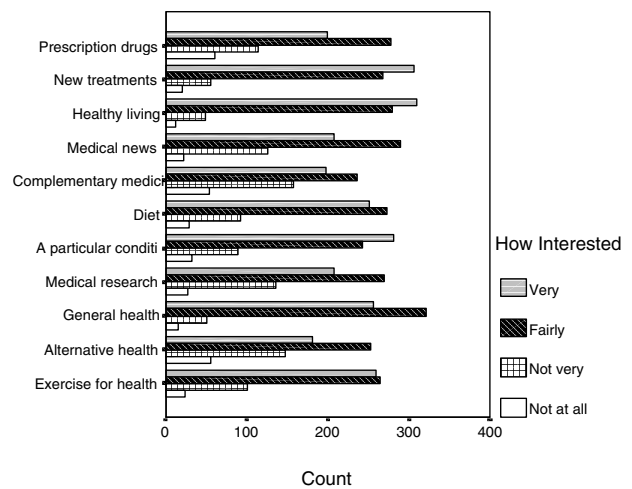
neighbourhoods; there are 6 categories, 17 groups and 54 neighbourhood types. We used the six category values only, and lower values represented wealthier neighbourhoods.

Results

Most important health sources

Figure 1 ranks information sources by their importance. The two most important sources of information for respondents were plainly oral – their own doctor and the practice nurse. Seventy-nine percent users said that their doctor was a very important source for health information. The NHS Direct phone line and friends and family were also important, and, respectively, 37% and 26% said these were very important sources. Perhaps surprisingly for digital TV owners, who might be expected both to be high consumers of digital (i.e. electronic) information, and have the means to afford Internet access, the Web was the least important source of information. Fifty eight percent of users cited this source as either not at all important or not very important. A relatively large percentage of respondents did cite television and Telewest in particular as a source of health information. While only 16% cited television as very important, a significant 53% cited it as fairly important. Telewest was cited by 28% as a very important source and by 48% as a fairly important source – and this is barely three months after the introduction of the

Figure 2: Interest in finding out information about following health topics



service, but plainly to the front of people's thoughts.

Most important health topics

Respondents were also given a list of health topics and asked which they were interested in. Figure 2 provides a bar chart of responses over 11 health topics covering issues such as a particular condition, medical research exercise and complementary medicine. The three most important topics were new treatments, healthy living and general health. Approximately 90% of respondents thought that these topics were either very or fairly interesting. Among topics considered less interesting were complementary and alternative medicine and medical research. Thirty to twenty-five percent of respondents said that these topics were either not very or not at all interesting. New treatment, healthy living and particular condition topics all attracted a relatively high percentage of very interested responses. Approximately 45 to 47% of users, but not the same users, said that they were very interested in these topics.

Health information seeking groups

It was decided to see whether respondents could be grouped by their rating of information sources. Respondents had the option to say how important each of ten information sources were to them. By using factor analysis we can identify if respondents used a combination of sources. Fac-

Table 1: Types of user identified by information sources used

	Group 1: Active traditional information user	Group 2: Passive traditional information user	Group 3: Electronic isolated user	Group 4: Electronic sociable user
Surgery leaflet		.627		
Practice nurse		.663		
Health books	.680			
Papers/ magazines	.675			
Telewest/ Living Health TV	.450		.830	
Web				.392
Friends & Family				.561
NHS Direct			.527	
Doctor		.491		

* Principal axis factoring, Varimax rotation, KMO=0.85. Factor scores 0.4 and greater are given.

tor analysis identifies groupings of variables. Variables within the group are highly correlated while the resulting combinations are un-correlated and independent of each other. The procedure identified four groups according to their selection of information sources. The four combinations accounted for 52% of the variance (Table 1).

Group one can be described as being formed of those people obtaining health information from traditional media sources – mainly from health books and publications but also from television. They rely on traditional sources, but actively seek information, and so can be personified as “Active traditional information users”. Group two people rely much more on in-house sources – leaflets in the doctor’s surgery, and oral information from the practice nurse or doctor for health information. These are also users of traditional sources, but they do not actively seek health information but let health professionals feed them with it. We have labelled them ‘Passive traditional information seekers’. Group 3 people use “electronic information” and identify themselves by their use of Telewest and Living Health and the NHS Direct phone line, and also television, for health information. These people can be labelled as “Electronic isolated users”. They use electronic sources, but not in a very active way and not in a social way. The last group consists of a quite different

kind of electronic user. These people use the web but also rely on friends and family and are labelled “electronic sociable users”.

The factor analysis procedure generates values for each respondent based on their combined use of information sources. We have identified four combinations or information types. A high value score on a combination identifies that that respondent is likely to use a particular combination of information sources and hence is a particular type of user. By using the scores as the dependent term in a multiple linear regression model we can then see what characteristics of the user, if any, are likely to identify that type of information source used. Table 2 reports the results of four regression models.

Table 2 presents the results of four regression models corresponding to the four identified information types: the active traditional information user; the passive traditional user; the electronic passive and isolated user and lastly the electronic sociable user. The characteristics of users are given on the left and the significant coefficients, related to each type of information user, are given in the table. Four types of user characteristics were included characteristics related to the users, the household area, their health topic interest and other detail for example if the user was responsible for the health of another. This is does not represent all the characteristics that are likely to determine information type, for example there is no variable covering educational qualification of user. Furthermore, household area information related by postcode details gives approximate figures for the area. However, it is felt that the data do give an indication of the likely characteristics of each information user type. The following looks at the significant characteristics of each type of information user.

Active traditional information users

This user seeks health information but tends to use traditional sources such as health books, newspapers and the television. The regression coefficient for age [3] and a general interest in health information are negative, suggesting that this type of user is, surprisingly, young (one may have expected younger people to use electronic sources to a greater extent) and has an interest in health information. Further coefficients are posi-

Table 2: Regression Models: identifying possible identifiers of information user types

	Information types			
	Group 1: Active traditional information user	Group 2: Passive traditional information user	Group 3: Electronic isolated user	Group 4: Electronic sociable user
Age	-0.40*** (0.09)			-0.09*** (0.02)
Gender			-0.19* (0.8)	0.10‡ (0.06)
Interest in Health info.	-0.21** (0.07)		-0.65*** (0.18)	
Medical news	0.29*** (0.06)		0.14* (0.06)	
Alternative health	0.19*** (0.06)			
Treatments		0.11‡ (0.06)		
General Health		0.31*** (0.07)		0.09‡ (0.06)
Complementary		0.12* (0.06)		0.15*** (0.04)
Medicine				
Diet	0.10‡ (0.06)	-0.12‡ (0.06)		
Health responsibility for another			0.27** (0.10)	
Prescription Drugs			0.12** (0.05)	-0.13*** (0.04)
A particular condition			0.21** (0.06)	
How often have you visited the doctor		0.17** (0.06)		
Watches ITV			0.17*** (0.05)	
Incidence of £20,000+ earners		-0.10* (0.04)		
Incidence of Microwave ownership				0.19** (.07)
R (R ²)	0.52 (0.27)	0.39 (0.14)	0.45 (0.20)	0.41 (0.17)

Levels of Significance (t-test statistic): ‡ P<0.10, *P<0.05, ** p<0.01, *** p<0.001.

tive suggesting that these users have an interest in medical news, dieting and alternative health topics. This combination suggests a person who has an interest in being healthy and who keeps up to date with health topics by reading traditional media. They probably feel that their current sources meet their needs and that they have sufficient information and hence they do not need to search electronic sources such as DiTV, although they are freely available to them.

Figure 3: Age and the respondents' average score on Factor 1 (Health information from traditional media)

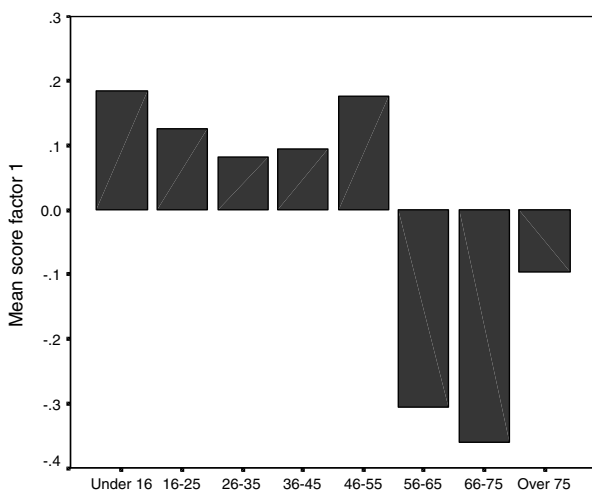


Figure 3 further examines the relationship between age and the use of traditional sources. The vertical axis in each case are the scores related to each information type. As can be seen people who score highly as a traditional information user are likely to be below the age of 55. Figure 4 displays the relationship with the person's interest in Medical News. As a person's interest in medical news increases they are more likely to use traditional paper sources for their health information.

Figure 4: Respondents' interest in medical news and average score on Factor 1 (Health information from traditional media)

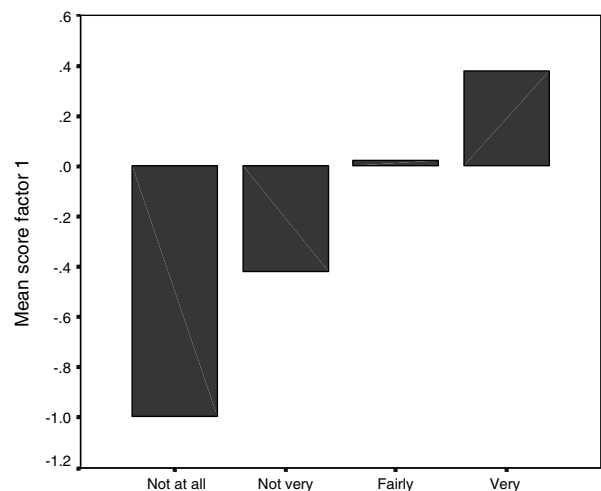


Figure 5: Respondent's household incidence of £20,000+ income and average score on Factor 2 (Health information in the Surgery environment)

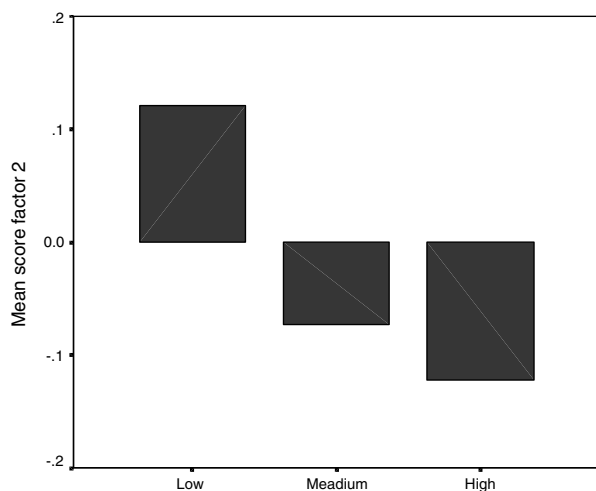
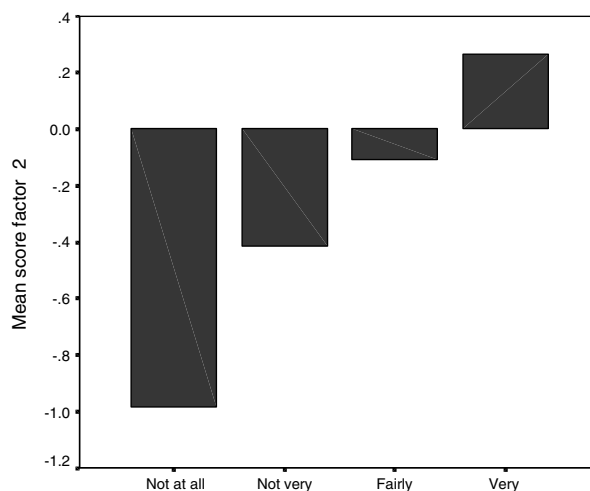


Figure 6: Respondent's interest in general health and the respondents average score on Factor 2 (Health information in the Surgery environment)



Passive traditional information users

From generated coefficients these users are likely to rely on health professionals and information in their doctor's surgery for their health information. They tend to be less well off and are likely to earn less than £20,000. Furthermore, they are not interested in dieting, and may be unwell or have children, as they are more regular visitors to the doctor and express an interest in both treatment and general health. These people may not be active readers of traditional media that include health information, but have not as yet taken up digital sources – although, by definition, they plainly have access to digital TV health information. However, they do recognise the importance of health information but rely on the doctor and surgery environment for this. There is some evidence (see below) that these users are more likely to be women under the age of 55.

Figure 5 shows the relationship between scores on this factor type of user and income and also with general health. Households with a low incidence of those earning less than £20,000 score high on this factor and this is also true of users with a high interest in general health (Figure 6).

Electronic isolated users

These people use electronic health information sources, but they do not use them in a social way. They will use their television – especially digital

television, and the NHS Direct phone line as health information sources. The variables identified as possible explanatory characteristics are that the user is more likely to be male; may have a health responsibility for another; [4] an interest in a particular condition, medical news and prescription drugs; and a high incidence of watching ITV. This points to two possible users – the at home carer and the male user who may have a minor long-term condition, but who does not like to talk about it. The person's interest in prescription drugs, a particular condition and medical news suggests that they have more than a general or passing interest in health topics. The high use of ITV suggests a high degree of TV watching and channel investigation and they may well have found the digital TV health service by surfing channel information.

Figure 7 and 8 displays the relationship between the person's health responsibility for another and the respondents' incidence of watching ITV and use of NHS Direct phone line with the respondents' score by this factor. Users caring for a member of the family or some other person appear to score highly on this factor, as do respondents who have a high incidence of watching ITV.

Electronic sociable users

The fourth group also use electronic sources but use the web and further also rely on friends and family for their health information. The variables

Figure 7: Respondents responsibility for the health of another and the respondents average score on Factor 3 (DiTV and NHS Direct Phoneline)

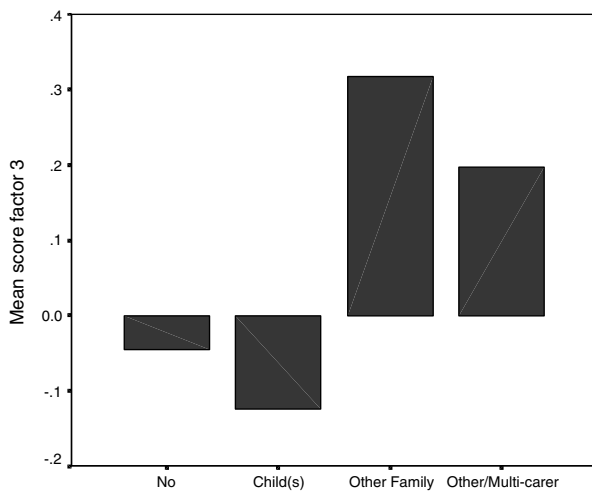
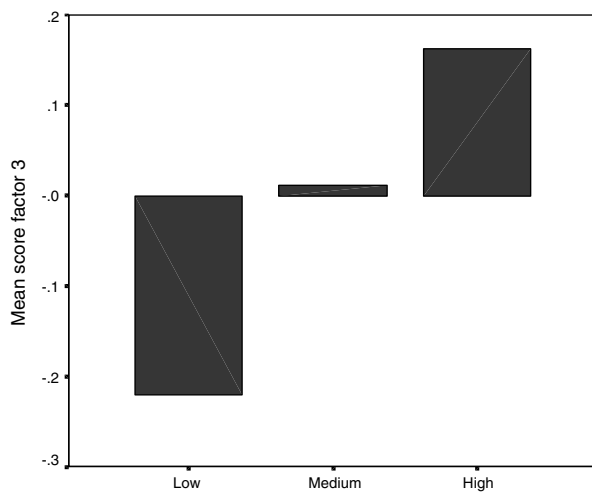


Figure 8: Respondents likelihood of watching ITV and the respondents' average score on Factor 3 (DiTV and NHS Direct Phoneline)



identified as being important to this group are: that users are likely to be aged 35 [5] and under, are more likely to be female, will have an interest in general health and complementary medicine, but will have a low interest in prescription drugs and have a higher incidence of microwave ownership. [6] Nearly all of these attributes make intuitive sense – the age group, gender, interest in health in particular – but it is useful to have these stereotypical types confirmed empirically.

Figures 9 and 10 show respectively the respondent's score on this factor across age and by the incidence of microwave ownership. As can be seen respondents scoring high on this factor seem

Figure 9: Age and the respondent's average score on Factor 4 (Health information from web, family and friends)

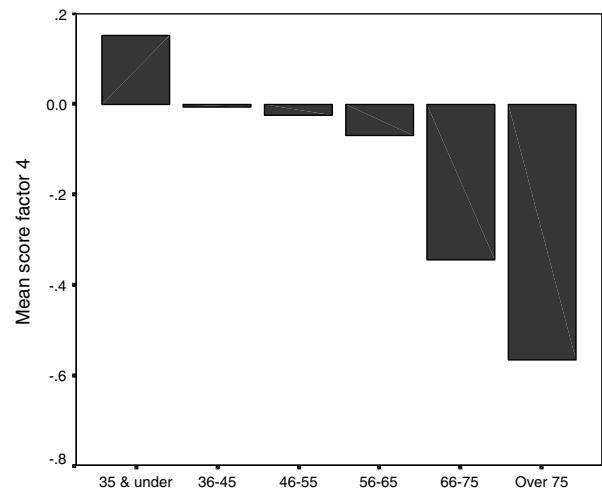
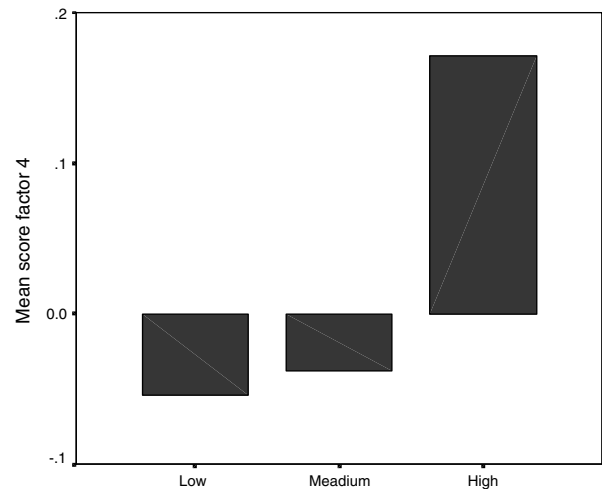


Figure 10: Respondent's incidence of owning a microwave by the respondent's average score on Factor 4 (Health information from web, family and friends)



to be young people, aged 35 and who have a high incidence of microwave ownership. This may indicate users who have grown up with electronic equipment – particularly the web. The surprising inclusion of microwave ownership may reflect an experience indicator, as most microwaves are digitally controlled. There is evidence to support that prior use of technology, such as microwaves, have an influence on digital information use. Pearson et al (1999), in a study of kiosk use by cancer patients, found that those with a previous experience using a video, microwave and cash card were more likely to find a kiosk easier to use and would have a longer session time.

Figure 11: Distribution of gender over age groupings – DiTV users only

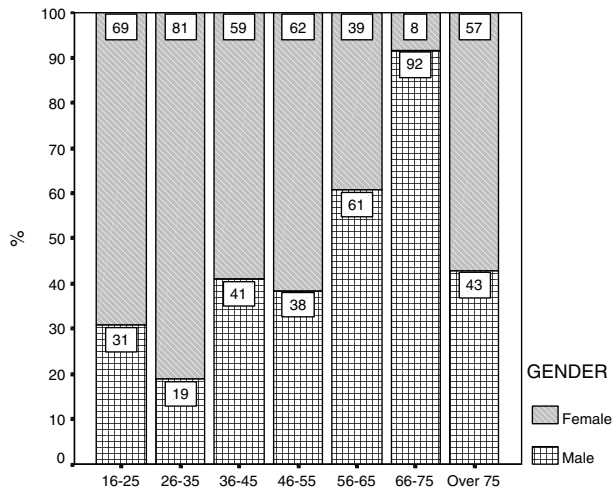
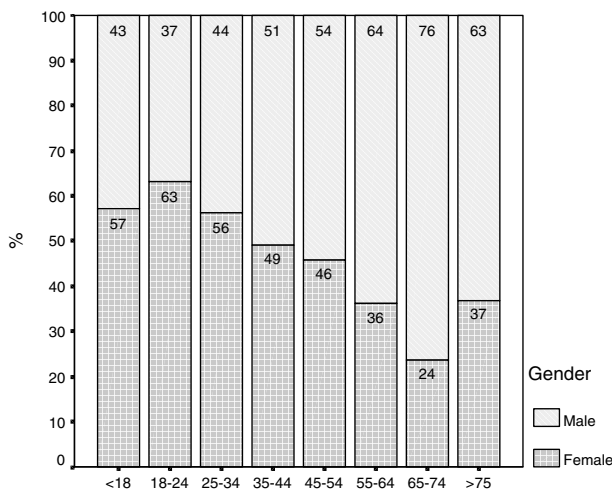


Figure 12: Respondent age and gender relationship NHS DO

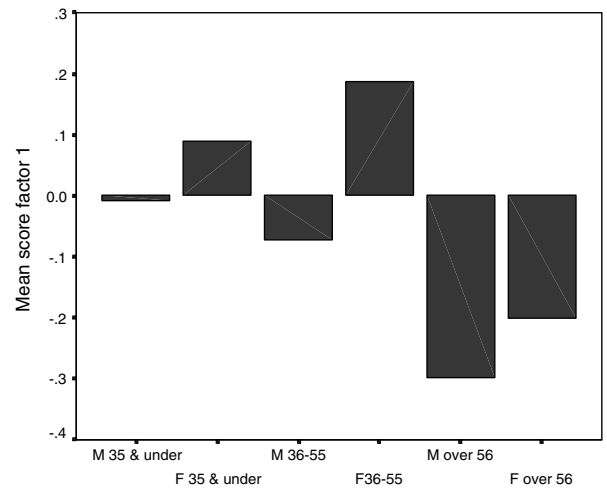


Focus on age and gender

A recent paper in the British Medical Journal (BMJ) suggested that men delay or avoid seeing the doctor (Banks, 2001). The paper cites research suggesting that men do not go to the doctor early enough and are reluctant to talk about health. This means that they are not likely to get early advice on life threatening illnesses – one of the reasons that they live seven years less than women do and suffer disproportionately from all the main diseases.

The authors’ research into the use of digital information supports the idea that men are late adapters to digital health information. Figure 11 displays the age gender relationship of those using the Living Health digital health information service and Figure 12 shows the relationship

Figure 13: Use of health information from traditional media by age gender



for users of the NHS Direct online web site. There is a relationship between use and age and gender. A higher proportion of younger respondents tend to be women while older respondents tend to be male and this is true for both DiTV and for the web based health information sources. For example, just fewer than two-thirds of respondents between 16 to 55 were women, however, only about a quarter of respondents were female in the 56 to 75 age group. These data fit with results from other research by the present writers (Nicholas et al, 2001) which show that older health information kiosk users tend to be male, and younger ones female, and that the same is true of Internet users (Nicholas et al, 2002).

The following figures – Figure 13 to 16 – break down the age and gender relationship across the four types of information user identified. Each figure has the same age/gender groups: men 35 and under, women 35 and under, men 36 to 55, women 36 to 55 men over 55 women over 55. The scores on the vertical axis relate to the group’s score by the information source used. Figure 13 for traditional media, Figure 14 scores for information from the surgery environment, Figure 15 looks at the use of DiTV and NHS Direct sources and Figure 16 the Web and friends/family.

Women under the age of 55 score particularly highly in both acquiring health information from traditional media sources and the surgery environment with men registering low scores (Figure 13). Traditional media sources might not offer sufficient detailed information and hence may

Figure 14: Use of health information from the surgery environment by age and gender

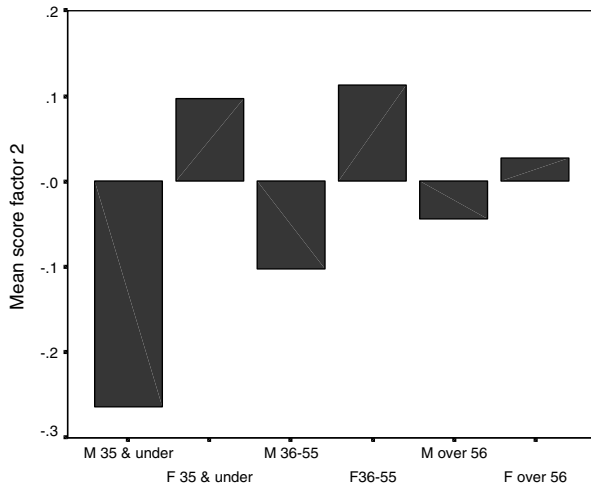


Figure 15: Use of health information from DiTV and NHS Direct by age and gender

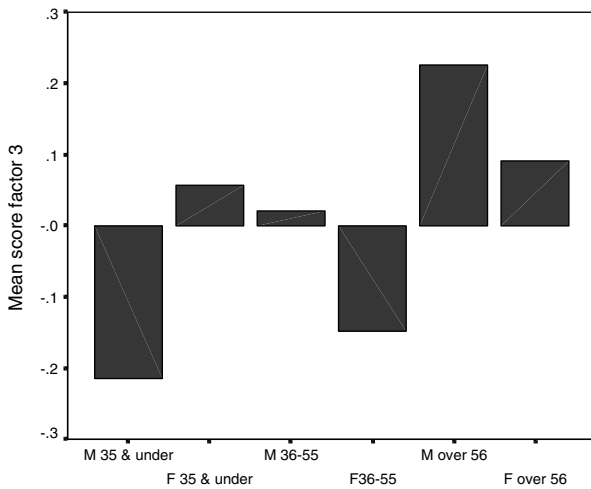
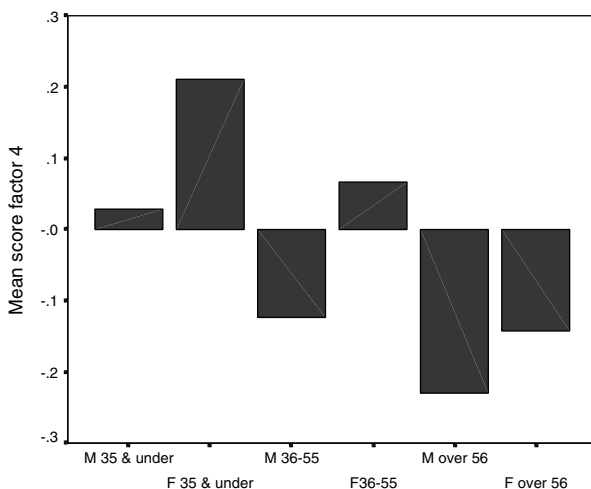


Figure 16: Use of health information from the web and family/friends by age and gender



well be not particularly useful and this might explain the particularly low score by the over 55's male and female.

Figure 14 examines the use of health information obtained from the doctor, practice nurse and surgery leaflets by age/gender group. Young men aged 35 and under in particular (Figure 14), it appears, from their low scores, do not acquire information from a surgery environment. In fact men of all age groups perform badly at acquiring information from this source. It is perhaps no surprise that a recent commentary in the British Medical Journal discussing gender and use of NHS services was titled 'No Man's Land' (Banks, (2001). However, later in life men do make more use of this information source – possibly forced to by circumstances as they get older. Women under the age of 55 perform well at acquiring information from this source.

Men over the age of 35 start to acquire electronic information, either from the DiTV or NHS Direct phone line (Figure 15). This is particularly true for men over the age of 55 who score particularly high in this regard. In both age groups 36 to 56 and over men are better at acquiring health information compared to women. Though men 35 and under perform poorly. All this points to a real take up of health information by men 36 and over and suggests that these digital sources are particularly effective in targeting men.

There is some evidence that men aged 35 and under will use the web and family/friends to acquire health information. However, women in this age group tend to be far keener users of this type of information source (Figure 16). However, given the apparent unwillingness of men in this age group to acquire information from either DiTV sources or the surgery environment, a health web site designed for this group of men may well prove to be a well-used source. The apparent low take up of health information by older users may reflect the lack of access to web based technology.

Conclusion

This study is a first step in categorising people according to the health information sources they use, and in particular has identified links between sources of information and the characteristics of users. Further research, particularly qualitative work, needs to identify the underlying informa-

tion patterns of users and why some groups of users are not taking up DiTV health information sources though this is freely available to them.

The main findings of this research are:

- The two most important sources of information for respondents were their own doctor and the practice nurse. Seventy-nine percent users said that their doctor was a very important source for health information.
- Four groups of people were identified on the basis of the health information sources they reportedly used: the passive traditional media users who do not actively seek health information but let health professionals feed them with information; the electronic passive/isolated users who use electronic DiTV and NHS Direct phone line sources, but not in a very active way; and, finally, the active electronic sociable users who search the web but also rely on friends and family for information.

There is some evidence that links can be made between these groups and personal characteristics. A tentative linkage, from the evidence presented in this paper, might be:

- The active traditional media information user is young, interested in diets, and feel they are up to date with general health issues, and probably do not have any specific or pressing health information needs. They may not be currently using new digital sources for health, but possibly do so for other information or recreational needs;
- The passive traditional user is economically disadvantaged, unaware of other information sources but has an identified need for health information. Such people are more likely to visit the doctor;
- The electronic passive/isolated user, male, with an identified condition or is a carer. Television maybe a focal point for this type of user. They may be unwilling to talk about their health concerns to others;
- The electronic sociable users are younger people, interested in general health, more likely to be women, and come from households with a prevalence of electronic gadgets.

Another interesting finding concerned the negative relationship between the use of digital interactive television and the web. While use of certain new domestic technologies have been found to relate to the uptake and use of electronic health information sources, the finding here that DiTV users do not use the web to any great extent is significant. It may suggest the existence of distinct markets for these information technologies. The web user market is already becoming established,

but may have a limited reach. The remainder of the population may be more readily accessed by health information providers through the more familiar communications technology of television.

One question raised by these findings is the extent to which health information providers could use the categories identified to target specific groups by using the channels identified as being those most used. A second and related issue is the extent to which this should be undertaken in preference to the almost opposite strategy of using these channels to encourage alternative information seeking or behaviour styles. If this sounds paradoxical, an example might serve to illustrate the point – the passive traditional users could be informed about the alternative electronic sources the government is so keen on promoting. Similarly, the electronic isolated may be encouraged that it is a good thing to discuss their health concerns. Of course, with the categories as formulated up to now, both electronic isolated and sociables would receive the same messages. However, further research – planned for the near future – which examines WAP telephones, Internet enabled touch screen kiosks and possible other media, may tease out different media used by isolated as compared to sociables, and thus be able to suggest more refined targeting.

There is evidence (Nicholas et al. 2002) that using the same medium in different locations affects information seeking, and further research could reveal that some groups are less willing to approach a touch screen kiosk, for example, in a doctor's surgery than they would be if it were in a library. Fieldwork for the present study (Williams et al. – non-users), indeed, showed that some doctors' patients felt uneasy about consulting a kiosk in the surgery as it may look as if the GPs' instructions were being undermined or challenged. Clearly, the task of informing people entails more than simple blanket provision of facts fired from all media in a multitude of locations. Much thought (and research!) is required to fine tune information provision both to people's real needs, circumstances and preferences.

Notes

1. The Web, the kiosk, digital TV and the changing face of consumer health information provision: a national impact study. April 2000 – January 2002

2. <http://www.upmystreet.com/>
3. For the regression age was coded into two groups 55 and under and over 55.
4. For the regression this variable was coded into two groups none and child as one group and other family, other and multiple as the other grouping.
5. For the regression age was recoded into two groups 35 and under and over 35.
6. For the regression the low incidence of microwave ownership was coded with median.

References

- Arthur, A.M. 1995. Written patient information: a review of the literature. *Journal of Advanced Nursing* 21: 1081–1086.
- Banks, I. 2001. No man's land: men, illness, and the NHS. *British Medical Journal* 323: 1058–1060.
- Boston Consulting Group. 2001. Most European E-Health Ventures are Failing Because They Rely on Typical, Retail E-Commerce Business Models URL: http://www.bcg.com/media_center/media_press_release_subpage36.asp [viewed February 24, 2002].
- Coulter, A., Entwistle, V., Gilbert, D. 1998. Informing Patients: an assessment of the quality of patient information materials. London: The King's Fund.
- Cyber Dialogue. 2000. *Cybercitizen Health 2000* <http://www.cyberdialogue.com> [viewed January 5, 2001].
- Gann, R. 1998. Empowering the patient and public through information technology in Lenaghan (Ed) (1998) *Rethinking IT and Health*. London: Institute for Public Policy Research.
- Greenfield, S., Kaplan, S., Ware, J.E. 1985. Expanding patient involvement in care: effects on patient outcomes *Annals of Internal Medicine* 102(4): 520–8.
- Kai, J. 1996. Parents' difficulties and information needs in coping with acute illness in their pre-school children: a qualitative study *British Medical Journal* 313 (October): 987–990.
- Ley, P. 1982. Satisfaction compliance and communication. *British Journal of Clinical Psychology* 21: 241–254.
- Leydon, G.M., Boulton, M., Moynihan, C., Jones, A., Mossman, J., Boudioni, M., McPherson, K. 2000. Cancer patients' information needs and information seeking behaviour: in depth interview study. *British Medical Journal* 320 (April): 909–913.
- Mazzuca, S.A. 1982. Does patient education in chronic disease have therapeutic value? *Journal of Chronic Disease* 35: 521–529.
- NHS Information Authority. 1998. *Information for Health: An information strategy for the modern NHS – 1998–2005* London: HMSO [also available online at URL: <http://www.doh.gov.uk/ipu/strategy/full/contents.htm> [viewed February 24, 2002].
- Nicholas, D., Huntington, P., Williams, P. 2001. Health kiosk use: a national comparative study. *Aslib Proceedings* 53(4, April): 130–140.
- Nicholas, D., Huntington, P., Williams, P. 2002. Delivering health information digitally: a comparison between the Web and Touch Screen Kiosk. *Journal of Medical Systems* [in press: Winter 2002].
- Nicholas, D., Huntington, P., Williams, P. The impact of location on the use of digital information systems: case study health information kiosks. *Journal of Documentation* March 2002 (to be published).
- Nicholas, D., Huntington, P., Williams, P., Jordan, M. 2002. NHS Direct Online: its users and their concerns. *Journal of Information Science* (to be published March/April).
- Pearson, J., Jones, R., Cawsey, A., McGregor, S., Barrett, A., Gilmour, H., Atkinson, J., McEwen, J. 1999. The Accessibility of Information Systems for Patients: Use of Touchscreen Information Systems by 345 Patients with Cancer in Scotland *American Medical Informatics Association Annual Symposium 1999: Session 66 – Consumer Health Informatics II* URL: <http://www.amia.org/pubs/symposia/D005289.htm> [viewed February 24, 2002].
- Pinder, R. 1990. *The Management of Chronic Illness* Basingstoke: MacMillan.
- Poensgen, A., Larsson, S. 2001. Patients, Physicians, and the Internet: Myth, Reality, and Implications Boston: Boston Consulting Group.
- Williams, P., Nicholas, D., Huntington, P. 2002 Non-use of health information kiosks examined in an information needs context (draft article).

Editorial history:

received 3 February 2002; accepted 18 February 2002.