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THE EUROPEAN HEALTH LITERACY SURVEY: RESULTS FROM IRELAND.

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In 2008, Gerardine secured funding for a four year PhD study in the area of health literacy with MSD Ireland. The study is a part of the European Health Literacy Survey (HLS-EU) aimed at measuring health literacy in Ireland and performing comparative analyses with other European countries. Gerardine is responsible for the work package on valorisation for HLS-EU. The cost effectiveness of a variety of health literacy interventions and studies of the economic implications of limited health literacy are other research interests that Gerardine is pursuing. Gerardine has been chairperson of the judging panel for the Crystal Clear MSD Health Literacy Awards (healthliteracy.ie, crystalclearawards.ie) since their inception in 2007.

James Fullam

James Fullam is PhD student researching health literacy in Ireland. Specifically James is attempting to assess the effect of health literacy on health outcomes and health behaviours among the general public and within specific patient groups. James has worked closely with the European Health Literacy Survey (HLS-EU) consortium, particularly on the conceptual foundations and piloting of the survey instrument. James' work is supervised by Dr. Gerardine Doyle and is based in the UCD Michael Smurfit Graduate Business School and the UCD School of Public Health, Physiotherapy and Population Science. His PhD scholarship is supported by MSD Ireland.

Executive Summary

Introduction

- This is the first European Health Literacy Survey (HLS.EU). It represents the first attempt to measure health literacy in eight European countries. The objectives of the study were fivefold:

    1. To develop a model instrument for measuring health literacy in Europe.
    2. To generate first-time data on health literacy in European countries, providing indicators for national an EU monitoring.
    3. To make comparative assessment of health literacy across European countries.
    4. To create National Advisory Bodies in countries participating in the survey and to document different valorization strategies following national structures and priorities.
    5. To establish a European Health Literacy network

This is the report of the Irish study of the HLS.EU project. The report is divided into eight sections as follows:

1. Health Literacy
2. The HLS.EU
3. Methodology
4. Results
5. A descriptive overview of health literacy
6. The relationship between health literacy and health outcomes
7. European results
8. Conclusions, implications and recommendations

Method

- The Irish sample involved 1005 respondents (response rate 69%). Data was collected in July 2011. The sample was representative of the general population. The Newest Vital Sign (UK version) was also administered to respondents as part of the HLS-EU Questionnaire (HLS.EU.Q) to measure functional health literacy. Findings were analysed descriptively and also by predictor and outcome variables as designated by a conceptual model of health literacy developed by the HLS.EU consortium(Sorensen et al., 2012).

Findings: Health Literacy

- Of the respondents in Ireland, 10.3% had inadequate health literacy, 29.7% had problematic health literacy, 38.7% had sufficient health literacy and 21.3% had excellent health literacy.

Findings: Functional Health Literacy

- Of the respondents, 19.9% showed a high likelihood of limited functional health literacy, 22.5% showed a possibility of limited functional health literacy and 57.6% had adequate functional health literacy.

European Findings

- Of the eight participating countries, Ireland had the second highest level of health literacy, after the Netherlands. All countries displayed positive correlations between health literacy and education, health literacy and self-assessed social status, health literacy and the Newest Vital Sign score. All countries displayed negative correlations between health literacy and financial deprivation, health literacy and self-assessed health. With regard to age, all countries except the Netherlands displayed a negative correlation between health literacy and age.

Recommendations

Recommendations from the study are presented at both the national level and the European level.

Recommendations for Ireland

- Health care professionals in Ireland should adjust their expectations in assuming the levels of health literacy and literacy of their patients. Health literacy should be included in the education and evaluation of health care practitioners.
- Health education and its assessment needs to be integrated into the school curricula from the earliest years to school leaving age.
- Efforts must be made to identify individuals with poor functional literacy at the point of entry to the health system and steps should be taken to counter this risk factor immediately.
- Further research is needed into the barriers to accessing information on mental health.
- Health literacy should be considered in the development of all health promotion initiatives at all levels/settings, i.e. primary care, hospital settings, residential care and national health promotion campaigns. Plain language should be the foundation of all new materials but the cognitive ability required to understand and process the information presented should also be taken into account.

- The study recognises the efforts made by the pharmaceutical industry to produce information leaflets that take into account consultation with target patient groups, a process that is required by legislation *(Directive 2001.83 EC as amended 07/11)*. However in light of the findings of the extent of low levels of functional literacy in Ireland and given that 17.5% of those surveyed still have difficulty understanding medication leaflets, the industry is encouraged to investigate ways to further incorporate principles of health literacy into the information they provide.

- In the media, standards of reporting should be considered to aid people in their interpretation of health information.

At a European level the HLS-EU consortium has proposed the following policy recommendations which are also relevant to Ireland, as a member of the EU:

- Define concrete objectives and ways to empower citizens and increase health literacy, which should become a priority in the European Commission's new programme, and promote concrete cross-sector, multi-stakeholder collaboration.

- Feature health literacy prominently in the new European health strategy, following the White Paper (European Commission, 2007).

- Fund projects to promote health literacy in the context of the new seven year health programme, and ensure that the impact on health literacy will be one of the selection criteria for funding of any project put forward in this programme.

- Develop a comprehensive health information and literacy strategy that goes beyond the current Directive on Information to Patients.

- Conduct further research to inform policies and help measure the impact of health literacy across Europe.

SECTION 1: HEALTH LITERACY

What is Health Literacy?

Health literacy as a concept is defined as:

The degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions (Institute of Medicine, 2004).

Or

Health literacy encompasses people's capacities, skills, and motivation to access, understand, appraise, and apply health information (Sorensen et al. 2011).

An adequate level of health literacy enables an individual to make judgments and informed decisions with regard to healthcare, disease prevention and health promotion.

Health literacy is a shared function of social and individual factors, which emerges from the interaction between the individual and the health care system. At first glance health literacy may appear to be primarily concerned with the comprehension of reading materials, and there is indeed a clear and established link between reading skills and health literacy (Baker 2006; Kwan et al. 2006). However there is much more to being health literate than simply the ability to read. Much of the health information that people are expected to comprehend is in the form of one-on-one interactions with health professionals and health information presented through various forms of media. At its core the health literacy issue is one of a mismatch between people's skills and the demands of the healthcare system. Modern healthcare requires more participation of the individual, both in the clinical setting and in lifestyle choices, than ever before.

Why are we concerned about health literacy?

Nutbeam (2008) has proposed two distinct ways to view health literacy, as a *clinical risk factor* or as a *personal asset*. From the health professional's perspective, it is the notion of *clinical risk factor* that is relevant. Ireland is regarded as having a well educated population; however this assumption obscures the fact that nearly half of the population has low literacy

skills, half of these having difficulty with the most basic reading tasks (OECD 1997; NALA, 2009). Recent research in the UK (Weinman et al. 2009) found that many patients and the general public do not know the location of key body organs, even those in which their medical problem is located (e.g. only half of cardiac patients could identify the heart organ on a simple body diagram). Research has also demonstrated that patients recall and comprehend as little as half of what they are told by their physician (Roter, 2000, Rost and Roter, 1987, Crane, 1997, Bertakis, 1997). Clearly many members of the public are at serious risk of misunderstanding health communications. Evidence from a recent survey carried out in Ireland found that over two thirds of Irish GPs do not realise the extent of literacy problems amongst Irish patients (Health Service Executive and NALA, 2009). International research has highlighted that doctors commonly overestimate patients' literacy levels and rarely consider limited literacy skills in their assessment of whether patients understand what they need to do to manage their illness (Bass et al. 2002; Powell and Kripalani, 2005). These findings suggest that there are important consequences for doctor-patient communication and there are clear issues to do with patient safety. As research in the field has progressed, well designed studies that have controlled for factors such as education and income have found alarming links between limited levels of health literacy and health outcomes in different groups. A sample of these include:

- Inadequate health literacy independently predicts all-cause mortality and cardiovascular death among community dwelling elderly persons (Baker et al. 2007).
- Inadequate health literacy is independently associated with poor glycaemic control and higher rates of retinopathy in type 2 diabetics (Schillinger et al. 2002).
- Individuals with inadequate functional health literacy have a higher risk of hospital admission (Baker et al. 1998, Baker et al. 2002).
- Health literacy is a predictor of medication adherence in different patient groups including cardiovascular disease (Murray et al. 2004) and HIV (Waite et al. 2008).
- Asthmatic children with parents of low literacy have higher rates of hospitalizations and emergency department visits (Dewalt et al. 2007).
- Caregivers with limited literacy are likely to use a non-standard dosing instrument when administering liquid medication to infants (Yin et al. 2007).
- Mothers with limited literacy are less likely to continue breast feeding for more than two months (Kaufman et al. 2001).

- Angner et al. 2009, found that happiness and health literacy were positively correlated, a link likely to be mediated by a sense of personal control, the loss of which is likely when presented with information that cannot be understood or used adequately.

These findings are also useful to illustrate the value of health literacy as a *personal asset* for patients. Health literacy is a resource for a patient that allows them to understand and engage in the management of their own and their families' illness, particularly in the management of chronic disease. Empowering patients through increasing their health literacy should be an objective of all stakeholders in healthcare.

At this point numerous studies have established links between vulnerable groups and poor health literacy. These include groups such as the elderly, minority ethnic groups and those in the lower socioeconomic ranks of society. This makes it clear that health literacy is also an issue associated with equality in modern healthcare.

The ever more apparent relationship between health literacy levels and health outcomes suggest that health literacy based intervention may offer a relatively cost effective, easily initiated pathway for improving health outcomes and patient safety and satisfaction.

Health Literacy and Chronic Disease

One area in which the value of health literacy has been much advocated is the management of chronic disease. Chronic diseases have traditionally included the following: cardiovascular disease, diabetes, asthma and chronic obstructive pulmonary disease (COPD). As survival rates and durations have improved, this type of disease now also includes many varieties of cancer, HIV/AIDS, mental disorders (such as depression, schizophrenia and dementia) and disabilities such as sight impairment and forms of arthritis (Busse et al. 2010). With the incidence of many chronic diseases rising, notably, diabetes and dementia, health literacy will play an increasingly important role in the impact of these diseases on individuals, health systems and society.

Much of the self-management of these diseases is performed by individual patients outside of any medical setting. In many cases this care is of such complexity that it represents a significant burden to the patient. Presented below is some of the evidence on links between chronic disease and health literacy and also some examples and suggestions for ameliorating poor health literacy in those with chronic disease.

Diabetes

Low health literacy has been significantly associated with worse glycaemic control and poorer disease knowledge in patients with type 2 diabetes (Powell et al. 2007; Williams et al. 1998). Patients with limited health literacy have been identified as being especially vulnerable to significant hypoglycaemia in type 2 diabetes patients using anti-hyperglycaemic therapies (Sarkar et al. 2010). Efforts to reduce hypoglycaemia and promote patient safety may require self-management support that is appropriate for those with limited health literacy. Patients with inadequate health literacy have been shown to have lower rates of keeping a record of blood glucose testing results (Mbaezue et al. 2010). The same study found that patient education classes in diabetes management care were positively related to self-testing.

Asthma

Paasche-Orlow et al. 2005, found that inadequate health literacy was associated with a greater likelihood of hospitalization for asthma exacerbations, significantly less knowledge of asthma medication and improper metered-dose inhaler (MDI) technique. The same study found that tailored education (e.g. combined use of oral and written instruction, one-on-one personalized training, teach-to-goal until mastery, exhibiting appropriate MDI technique), could surmount low health literacy as a barrier to learning and remembering key asthma self-management skills. Rosenfeld et al. 2011, found a significant association between those participants with lower aural literacy skills and less successful asthma management. The authors recommend greater attention to the oral exchange, in particular the listening skills highlighted by aural literacy, as well as other related literacy skills to achieve clear communication.

Cardiovascular Conditions

A study by Gazmararian et al. 2006, suggests that low health literacy predicts medication adherence in patients with cardiovascular related conditions. Peterson et al. 2011 found that among patients with heart failure, low health literacy was significantly associated with all-cause mortality. Dewalt et al. 2004, showed that heart failure patients with limited literacy could achieve better outcomes than those with adequate literacy when they used a reliable, sustainable self-care system, in this case doctors helped them organize the information they needed to manage their condition into a few simple directions. The resulting booklet included simple, clear graphics, easy-to-follow steps, daily instructions, and charts to fill out.

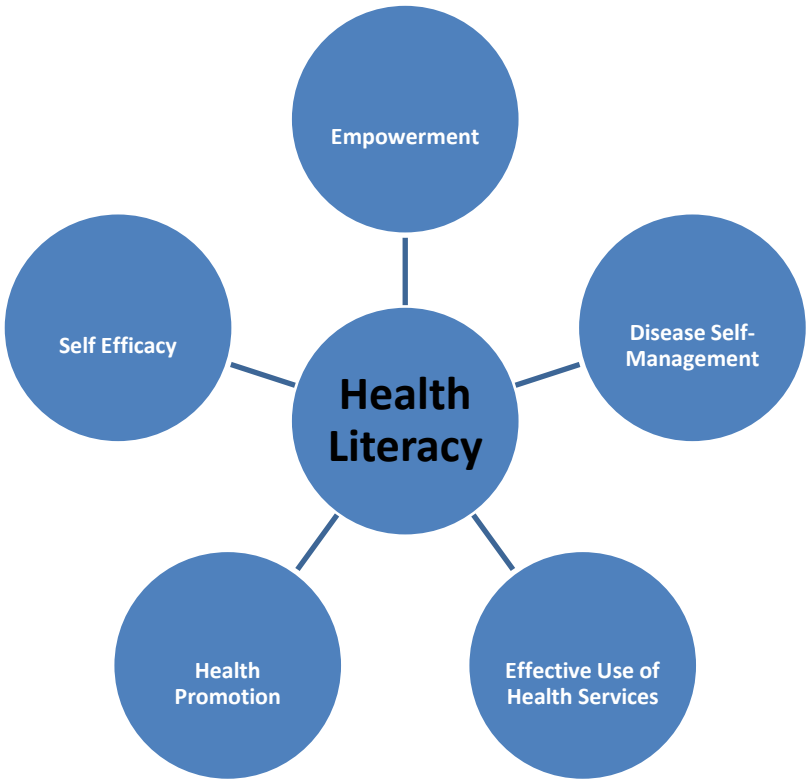


Figure 1 Health literacy, a personal for patients.

Health literacy in Ireland

Health literacy is a concept that developed in the United States and has gained prominence within academia and in public health promotion in the US, Canada and Australia over the last two decades. In the US a national action plan for health literacy has been developed and the implementation of health literacy programs is now on-going in many US states. There are also strong media interests in the US around health literacy issues. Europe has lagged behind in adopting the concept of health literacy but this situation is changing fast, with researchers and practitioners recognising its validity for inclusion in health promotion and healthcare strategies.

In Ireland the National Adult Literacy Agency (NALA), has been working on the area of health literacy since 2000. In 2002 NALA interviewed 78 adult literacy students to ascertain how weak literacy skills impact on dealing with the health service. These adults expressed frustration at being given so much reading material and described reading materials as dense and hard to read due to the degree of technical medical language. These results formed part of their published Health Literacy Policy and Strategy Report in 2002 (McCarthy 2002).

Market research commissioned by NALA and MSD in 2007 found the following:

- 20% of respondents are not fully confident in their comprehension of information they receive from their medical healthcare professional.
- 20% of respondents do not fully understand information and instructions that appear on medical packaging.
- 20% of respondents were unable to correctly identify which part of the body 'Cardiology Department' related to.
- 15% of respondents could not explain what the term 'Outpatients' meant.
- 57% of respondents said they would only sometimes seek clarification if they did not understand instructions from a healthcare professional.
- 10% of respondents admitted taking the wrong dose of medication because of failure to understand instructions.
- 66% of respondents have difficulty understanding signs and directions in Irish hospitals some of the time, 20% stated they have difficulty most of the time.
- 60% of respondents were unable to correctly define the term 'Prognosis'.

(Health Service Executive and NALA, 2009)

Over the years NALA has worked closely with the Health Service Executive Health Promotion Unit who have supported NALA's health literacy initiatives. Initiatives have included:

- health research;
- literacy friendly teaching packs;
- family literacy model developed and evaluated;
- literacy audit for healthcare settings; and
- a health literacy awareness DVD.

In NALA's updated policy document in 2009, their health literacy policy 'seeks to make the Irish health service literacy friendly where both the skills of individuals and the literacy demands of the health service are analysed. It wants to see a health service where literacy is not a barrier to treatment. It will work to influence the health service in every context: promotion, protection, prevention, access to care and maintenance' (NALA 2009).

In 2009 NALA developed the health literacy audit with the Health Service Executive (HSE). The Audit was produced as a health literacy tool for health settings. It allows people to identify possible literacy barriers in their workplace. It does this by comparing current practice to established communication best practice. The audit is also designed to highlight good practice in communication. In 2010 NALA received a grant from MSD to conduct a research project using the NALA/HSE Audit. This project introduced four Irish health settings to the NALA/HSE audit. It identified the following action areas, training, health literacy policy, lack of knowledge about local VEC literacy services, skills involved in healthcare and use of health literacy audits internationally (NALA 2010).

These findings, according to Coughlan (2010) will have serious implications for the healthcare system especially as health literacy problems are strongly associated with older people, and the number of older people in Ireland is rising.

Also in Ireland, attention has been focused on raising awareness of the issue of health literacy through the Crystal Clear MSD Health Literacy Awards, which recognise and reward excellence in programs for health literacy. These awards commenced in 2007 with an increasing number of entrants each year. The awards are a collaboration between NALA and MSD (see www.healthliteracy.ie for details).

The HLS-EU will, for the first time, provide data on health literacy in a representative sample of the Irish population. It is hoped that this data will promote the adoption of health literacy in policy formation, increase the profile of health literacy among Irish researchers and the Irish media, and also give indications of what influences health literacy in Ireland and how it may be affecting health service use and health behaviours.

SECTION 2: THE HLS-EU

The European Health Literacy Survey (HLS-EU) is a project which aims to help establish the issue of health literacy in Europe. The objectives of the HLS-EU are to:

- Establish a European Health Literacy Network.
- Create an instrument for measuring health literacy in Europe.
- Generate first-time data on health literacy in European countries, providing indicators for national and EU monitoring.
- Make comparative assessment of health literacy in European countries.
- Create National Advisory Panels in countries participating in the survey and to document different valorisation strategies following national structures and priorities.

The HLS-EU Consortium

The HLS-EU project is carried out in cooperation with partners in eight European project partners, and a number of collaborating partners. The consortium brings together members from various backgrounds including public health, psychology, education, sociology, accounting, and medicine. The project partners are:

- Maastricht University, the Netherlands
- National School of Public Health, Greece
- University College Dublin, National University of Ireland
- Ludwig Boltzmann Gesellschaft GmbH, Austria
- Instytut Kardiologii, Poland
- University of Murcia, Spain
- Medical University - Sofia, Bulgaria
- Landesinstitut für Gesundheit und Arbeit des Landes Nordrhein-Westfalen

Furthermore there are several organisations and institutes supporting the project as collaborating partners:

- Deakin University, Melbourne, Australia
- Health Literacy Missouri
- ECDC, Stockholm, Sweden
- MSD Europe; MSD Ireland and Switzerland
- Public Health Institute, Ljubljana, Slovenia
- National School of Public Health, Lisboa, Portugal
- Centre for Health Policies and Services, Bucharest, Bulgaria
- European Patient's Forum, Brussels, Belgium
- Instituto di Ricerche Farmacologieche Mario Negri, Milan, Italy
- University Hospital of North Norway, Tromsoe, Norway
- University of Adelaide, Australia
- Ministry of Health and Children, Dublin, Ireland
- National Consumers Council, United Kingdom
- Institute of Public Health in Crakow, Poland
- Chinese Academy of Medical Sciences & Peking Union Medical College, China
- Scientific Institute of Public Health, Brussels, Belgium
- National Adult Literacy Database, Canada
- Bavarian Health and Food Safety Authority, Germany
- Institute for Medical Informatecs, Biostatistics and Epidemiology, Germany

The HLS-EU-C: A Conceptual Model of Health Literacy

At the outset of the HLS-EU project it was agreed that existing models did not fully elucidate the concept of health literacy as envisioned by the project partners. Therefore the consortium proposed a new integrated model of health literacy. This model aims to capture the main dimensions of existing conceptual models. In addition it includes the full range of input and output factors identified in two independent literature reviews that focused on the conceptualisation of the concept of health literacy. This new model the HLS.EU.C (Figure 2) is discussed in detail below.

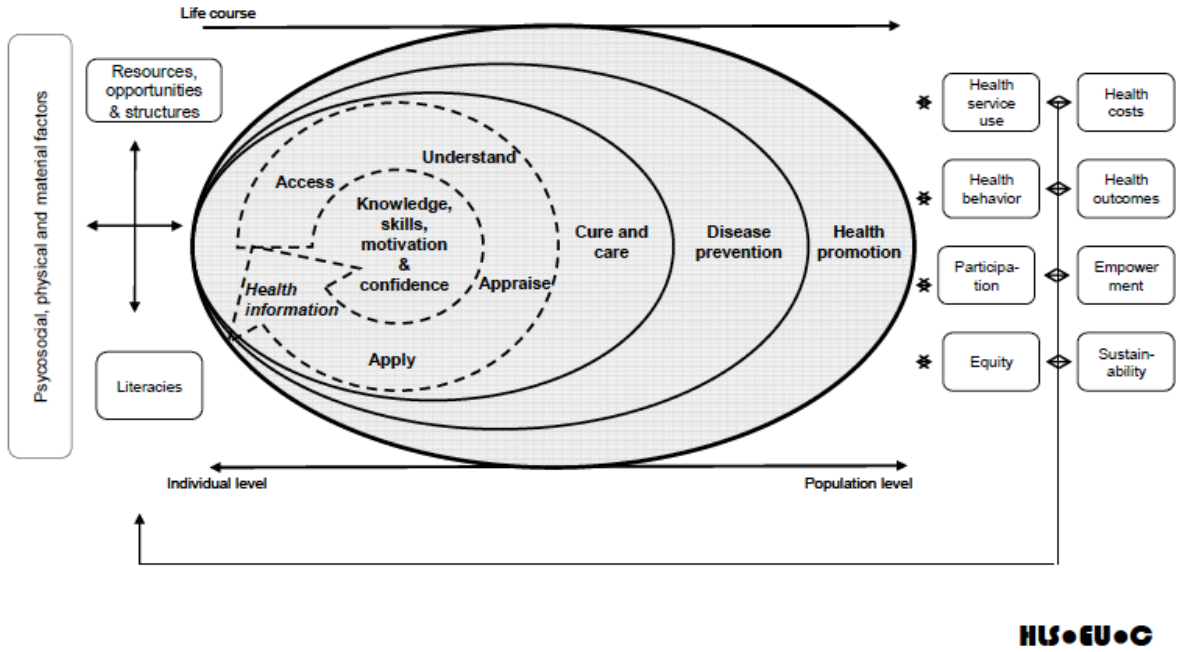


Figure 2 The HLS-EU Conceptual Model of Health Literacy, the HLS-EU-C.

(Adapted from Sorensen et al. 2012)

The model combines the qualities of a conceptual model outlining the main dimensions of health literacy (represented in the concentric oval shape), and of a logical model showing the proximal and distal factors which impact on health literacy, as well as the pathways linking health literacy to health outcomes. The core of the model shows the main competencies necessary to be considered health literate, namely the abilities to;

(1) *Access* (refers to the ability to seek, find and obtain health information)
(2) *Understand* (refers to the ability to comprehend health information)
(3) *Appraise* (describes the ability to interpret, filter, judge and evaluate health information)
(4) *Apply* (refers to the ability to communicate and use the information to maintain and improve health).

These competencies can easily be linked to the levels of functional, interactive and critical health literacy. Effectively employing these four competencies enables a person to navigate three domains of the health continuum: being ill or as a patient in the health care setting, as a person at risk of disease in the disease prevention system, and as a citizen in relation to health

promotion efforts in the community, work place, and educational system. The capacity to navigate this health continuum depends on cognitive and psychosocial development as well as on previous and current experiences, meaning that a person's health literacy is constantly evolving with life experience. Health literacy is also obviously context dependent.

The model incorporates a progression from an individual towards a population perspective. As such, the model integrates the "medical" conceptualisation of health literacy with the broader "public health" perspective. Placing greater emphasis on health literacy outside of health care settings has the potential to impact on preventative health and reduce pressures on health systems.

In addition to the components of health literacy proper, the model also shows the main antecedents and consequences of health literacy. Among the factors which impact on health literacy, a distinction is made between more distal factors, including personal characteristics (e.g., age, gender, race, education, socioeconomic status, occupation, employment, income), and factors in the social and physical environment (e.g., demographic situation, social support, culture, language, political forces, media use, family and peer influences and physical environment), and proximal factors, which are more concerned with personal competencies and other forms of literacy. Literacies can be divided into (1) *fundamental* (i.e. competence in comprehending and using printed and spoken language which affects a wide range of cognitive, behavioral, and societal skills and abilities) (2) *science literacy* (i.e. the ability to comprehend technical complexity, understanding of common technology, and an understanding that scientific uncertainty is to be expected), (3) *cultural literacy* (i.e. recognizing and using collective beliefs, customs, world-views, and social identity relationships) and, (4) *civic literacy* (i.e. knowledge about sources of information and about agendas and how to interpret them, enabling citizens to engage in dialogue and decision-making).

Moving to the outcomes associated with health literacy, it is shown to influence health behavior and the use of health services, and thereby will also impact on health outcomes and on the health costs in society. At an individual level, ineffective communication due to poor health literacy will result in poorer health, poor quality of self-care/self-management in

disease, ineffective use of health services and a decreased ability to advocate for oneself in the health arena. At a population level, health literate societies are better able to participate in ongoing public and private dialogues about health, medicine, equity and sustainability in public health. Advancing health literacy can be seen as a part of individual and societal development towards improved quality of life. Consequently, low health literacy can be addressed by educating persons to become more resourceful (i.e. increasing their personal health literacy), and by making the task or situation less demanding, (i.e. improving the "readability of the system").

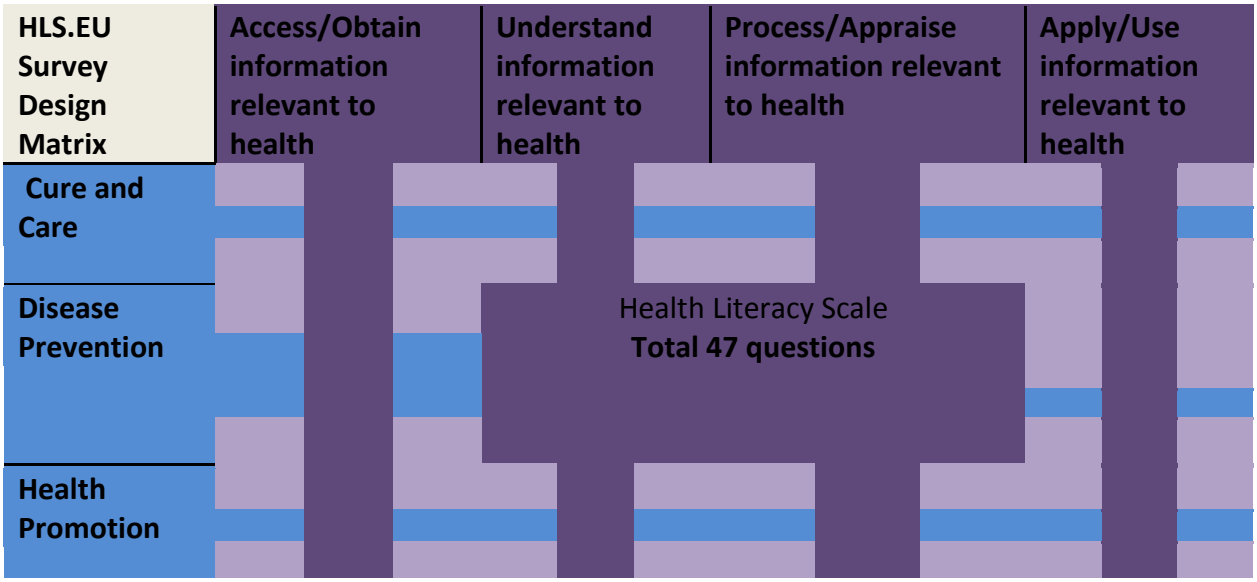
From the HLS-EU-C to an Instrument for Measuring Health Literacy

The combination of the four dimensions referring to health information processing within the three domains of the HLS-EU-C yields a matrix with 12 dimensions of health literacy (Table 1). This matrix served as a template in choosing and designing questions for the health literacy section of the HLS-EU, questions 1- 47 (Figure 3).

Table 1 The 12 dimensions of health literacy.

	Access/obtain information relevant to health	Understand information relevant to health	Process/appraise information relevant to health	Apply / use information relevant to health
Cure and care	Ability to access information on medical or clinical issues	Ability to understand medical information and derive meaning	Ability to interpret and evaluate medical information	**Ability to make informed decisions on medical issues**
Disease prevention	Ability to access information on risk factors for health	Ability to understand information on risk factors and derive meaning	Ability to interpret and evaluate information on risk factors for health	**Ability to make informed decisions on risk factors for health**
Health promotion	**Ability to update oneself on determinants of health in the social and physical environment**	**Ability to understand information on determinants of health in the social and physical environment and derive meaning**	**Ability to interpret and evaluate information on health determinants in the social and physical environment**	**Ability to make informed decisions on health determinants in the social and physical environment**

Figure 3 Design matrix for HLS-EU Health Literacy Items.



SECTION 3: METHODOLOGY

Data Collection

Between the 4th of July and the 27th of July 2011, TNS Opinion & Social, a consortium created between TNS Plc and TNS Opinion, carried out the first wave of the HLS-EU, on request of the HLS-EU consortium. This survey covered a sample of the population of the respective nationalities of 8 European Union Member States (in Germany only the region North Rhine-Westphalia was interviewed and in Greece interviews took place in Athens), resident in each of the Member States and aged 15 years and over.

Sampling

A multi-stage, random sampling design was used to conduct the data collection in all the participating countries / states. In each country / state, a number of sampling points was drawn with probability proportional to population size (for a total coverage of the country / state) and to population density. The sampling points were drawn systematically from each of the "administrative regional units", after stratification by individual unit and type of area. They thus represent the whole territory of the countries surveyed according to the EUROSTAT NUTS II (or equivalent) and according to the distribution of the resident population of the respective nationalities in terms of metropolitan, urban and rural areas. In each of the selected sampling points, a starting address was drawn, at random. Further addresses (every Nth address) were selected by standard "random route" procedures, from the initial address. In each household, the respondent was drawn, at random (following the "closest birthday rule"). All interviews were conducted face-to-face in people's homes and in the appropriate national language. As far as the data capture is concerned, CAPI (Computer Assisted Personal Interview) was used in all the listed countries except in Bulgaria and Ireland where PAPI (Paper Assisted Personal Interview) was used.

Recruitment

Recruitment results are summarised in Table 2 below.

Table 2 Recruitment Results Wave One HLS.EU.

	IRELAND
Number of sampling points	255
Number of starting points	255
Number of addresses	1869
Number of individuals contacted	1459
1st visit	1869
2nd visit	67
3rd visit	19
4th visit	4
Number of interviews stopped underway	0
Number of net interviews	1005
Number of refusals	454
Response rate (%)	69%
Number of interviewers	54
Average interview length (in minutes)	22
Shortest interview (in minutes)	12
Longest interview (in minutes)	41

The Health Literacy Index

This section of the report is an extract from the *Report Technical Details of the HLS-EU-Q for Measuring Health Literacy Across Countries.* (Rothlin & Pelikan, 2012, forthcoming).

Technical Properties of the HLS-EU Indices

Eight scales representing the structure of the HLS-EU conceptual model were created:

1 A general HL scale comprising all items and providing a general picture and overview,

2-4 Three dimension-specific scales covering healthcare, prevention and health promotion, and

5-8 Four information-processing specific scales covering the different stages of information processing.

Scales are based on the inverted categories of the items (thus a higher value denotes better health literacy) with the following numerical values: 1=very difficult; 2=difficult; 3=easy; 4=very easy. See Table 3 which sets out the items which apply to each of the scales.

Table 3 General and specific health literacy scales and their respective items; minimum number of valid answers necessary for index calculation; minima and maxima of scale metric.

Scale	General	Health Care	Disease Prevention	Health Promotion	Find Information	Understand Information	Evaluate Information	Apply Information
Q1.1	✓	✓			✓			
Q1.2	✓	✓			✓			
Q1.3	✓	✓			✓			
Q1.4	✓	✓			✓			
Q1.5	✓	✓				✓		
Q1.6	✓	✓				✓		
Q1.7	✓	✓				✓		
Q1.8	✓	✓				✓		
Q1.9	✓	✓					✓	
Q1.10	✓	✓					✓	
Q1.11	✓	✓					✓	
Q1.12	✓	✓					✓	
Q1.13	✓	✓						✓
Q1.14	✓	✓						✓
Q1.15	✓	✓						✓
Q1.16	✓	✓						✓
Q1.17	✓		✓		✓			
Q1.18	✓		✓		✓			
Q1.19	✓		✓		✓			
Q1.20	✓		✓		✓			
Q1.21	✓		✓			✓		
Q1.22	✓		✓			✓		
Q1.23	✓		✓			✓		
Q1.24	✓		✓				✓	
Q1.25	✓		✓				✓	
Q1.26	✓		✓				✓	
Q1.27	✓		✓				✓	
Q1.28	✓		✓				✓	
Q1.29	✓		✓					✓
Q1.30	✓		✓					✓
Q1.31	✓		✓					✓
Q1.32	✓			✓	✓			
Q1.33	✓			✓	✓			
Q1.34	✓			✓	✓			
Q1.35	✓			✓	✓			
Q1.36	✓			✓	✓			
Q1.37	✓			✓		✓		
Q1.38	✓			✓		✓		
Q1.39	✓			✓		✓		
Q1.40	✓			✓		✓		
Q1.41	✓			✓			✓	
Q1.42	✓			✓			✓	
Q1.43	✓			✓			✓	
Q1.44	✓			✓				✓
Q1.45	✓			✓				✓
Q1.46	✓			✓				✓
Q1.47	✓			✓				✓
Minimum number of valid answers for scale calculation								
Item Number	43	15	14	14	12	10	11	11
Convenient metric of scales								
Minimum	0	0	0	0	0	0	0	0
Maximum	50	50	50	50	50	50	50	50

To have a scale computed, a given respondent had to have answered validly at least 80% of the items representing the scale in question. The number of items an individual had to answer to be part of the calculation for the different scales can be seen in the item number row of 3.

To allow meaningful and convenient calculations with indices and for comparisons between sub-indices, all eight scales were set to a metric between 0 and 50, using the following formula:

Formula:

$$\frac{}{}$$

Where:

Index….. is the specific scale calculated

mean….. is the mean of all participating items for each Individual

1 …… is the minimal possible value of the mean (leads to a minimum Value of the Index of 0)

3 …… is the range of the mean

50……. is the chosen maximum value of the desired scale

The Fixation of Thresholds for the European Health Literacy Index

It is common and useful practice for literacy and health literacy measures to define limited or problematic levels of literacy, since it is this kind of simplification that makes health literacy measures on the level of general populations practicable and valuable for decision making in health policy. For that purpose, thresholds have to be defined, and justified. We opted for 4 categories: "inadequate", "problematic" (which together also define "limited" health literacy), "sufficient" and "excellent", and thus had to introduce three different thresholds. Thresholds have been fixed just for the four most important indices (general, healthcare,

disease prevention, health promotion) by a technical decision of the team in Vienna. The guiding criterion for the fixation of thresholds was the assessment of the likelihood of an individual to be confronted with excessively demanding situations, where appropriate decision making and information processing cannot be expected. Thresholds were then internally validated to the general distribution of the scales and externally validated with regard to their validation patterns to external criteria.

As a threshold for "inadequate" health literacy, scores below 26 have been chosen, i.e. individuals with inadequate health literacy have at least rated 50% of the items as difficult or very difficult. It again has to be stated that this threshold is based on technical decisions of the project statistical team and was a relatively arbitrary decision. The border between sufficient and problematic health literacy was fixed by a score value of 33, i.e. below 2/3 of the possible points to be reached. This score coincides with the modus, median and mean of the distributions of the four indices which lie between 33 and 34 points. Thus the cutting point between problematic and sufficient health literacy approximates to the point estimators of the distribution. The skewed normal distributions indicate that the HLS-EU Indices are more sensitive and provide more information for lower literacy scores, especially regarding the three domain related indices. For the cut point between "sufficient" and "excellent" health literacy, 42 was designated, which marks the bottom 80%, top 20% of the population shares.

Furthermore, categorized indices were tested according to their co-variation patterns with their corresponding indices, as well as with other important covariates (to prove if the correlation patterns of the categorized indices are similar to the correlation patterns of the original scales) like self-perceived health, health care use, demographic variables or the NVS. We chose the same numerical scores as thresholds for the four indices, and did not adjust for somewhat different means and degrees of skewness, to keep the differences in difficulty of the four indices comparable.

Conclusion of Validity and Reliability Analyses and General Remarks

While the high values of Cronbach´s alphas can be regarded as evidence of appropriate internal consistency of the indices, and as an indicator for scale reliability, they would be misinterpreted, if used, as evidence for uni-dimensionality. Therefore confirmatory factor

analysis was used as a means to test for underlying dimensions and the appropriateness and validity of the theoretical model.

The analysis so far only confirmed that the HLS-EU items have scale properties only to a certain extent. While they can be combined to internally consistent indices (partly because of the length of the indices) there are some problems regarding the covariance structure of the items. So far we didn´t find a Confirmatory Factor Analysis (CFA) model that represented the covariance structure of the items to our complete satisfaction. The best fitting CFA model was furthermore a model that allowed items to load on more than one factor. This has to be expected with regard to the theoretical matrix we used for item construction. Every item of the matrix has at least two background factors (one domain factor and one information processing factor). This leads to some serious problems for the psychometric assumption of unidimensionality of items. Following our analyses, we therefore don´t assume that the HLS-EU items can be combined to psychometric scales (at least not in the transnational European sample).

We therefore use simple index building as comparison strategy. As opposed to scales, indices cannot be assumed to be unidimensional measures. Both contextual circumstances and individual competencies have to be considered for the interpretation of results. We feel confident to use at least 4 health literacy indices for further comparative analyses, the General HL index, and three content specific indices for HCHL (Health Care HL), DPHL (Disease Prevention HL) and HPHL (Health Promotion HL). These indices follow assumptions of the conceptual model, show high internal consistencies, and to a sufficient degree (for indices) are confirmed by confirmatory factor analysis.

It is important to understand the relational nature of the HLS-EU-Q items. Health literacy as a relational concept not only depends on personal competences, but also on context specific variables like national health cultures, the complexity or readability of national health care systems, the history of national information and media campaigns and the foci of national and regional health policies. Different values on HL indices can therefore be interpreted as an individual assessment of the complexity/uncertainty/manageability of health relevant situations and tasks. This means that in a cross-national context, comparing HLS-EU health literacy measures is actually comparing the perceived manageability of health relevant situations and tasks. The type and nature of the health relevant tasks/situations was decided

according to the HLS-EU measurement model and within the international HLS-EU expert community. Because of this, we are confident that the items in the HLS-EU-Q are reasonably important for all participating countries to provide balanced and relevant information on national differences.

Since the HLS-EU-Q is still in a first phase, we want to note that a number of items in the instrument could be developed in future studies in order to improve scaleablity as a whole.

SECTION 4: RESULTS

Introduction

The HLS-EU was conducted between 4th of July and the 27th of July 2011 by TNS Opinion & Social at the request of the HLS-EU consortium. In Ireland there were 255 sampling points in total and 54 professional interviewers conducted the research. In total 1459 individuals were contacted to participate in the research, 1005 accepted representing a response rate of 69%. Interviews ranged in length from 12 to 41 minutes with an average interview length of 22 minutes (see Table 2).

Table 4 below presents the regional distribution of interviews conducted in each region, proportional to population size.

Table 4 Regional Distribution of Surveys

	Population	Target interviews	Observed interviews
Dublin	973,000	276	279
Rest of Leinster	935,000	265	263
Munster	974,000	277	280
Connacht/ Ulster	640,000	182	183
TOTAL	**3,552,000**	**1000**	**1005**

Respondent Profiles

The survey elicited descriptions of the following

- Gender
- Age
- Height and Weight
- Identity
- Socio- economic status
- Social deprivation and economic barriers
- Health promotion (Managing resources for health and well-being)
- Disease prevention (Managing risk factors for health)

- Cure and care (Managing symptoms, complaints, illness and treatments)
- Personal health
- Health service use
- Health behaviour
- Social interaction
- Newest Vital Sign

Descriptive analysis of demographics

Gender

In total 1005 individuals were interviewed in the Republic of Ireland, 431 (42.9%) were male and 574 (57.1%) were female.

Age

The age profile of respondents ranged from 15 years of age to 91 years of age, with an average respondent age of 45 years.

Height and Weight

Respondents' height ranged from 139 to 200cm with an average height of 168.5cm. Weight ranged from 38 to 170 kg with an average weight of 73.8 kg. Height and weight were used to calculate Body Mass Index (BMI).

Identity

Figure 4 presents the breakdown of identity of the population sample. In relation to respondents' identity 913 (91.7%) of respondents indicated that both their parents were born in Ireland. 32 (3.2%) indicated that one of their parents was born in Ireland and the other was born within the EU. In 39 (3.9) cases both parents were born in an EU state outside of Ireland, and in 6 (.6%) cases one parent was born in Ireland and the other was born outside the EU. In 5 (.5%) cases the respondent indicated that both parents were born outside the EU, and in a single case (.1%) the respondent indicated that one of their parents was born in another EU state while the other was born outside the EU.

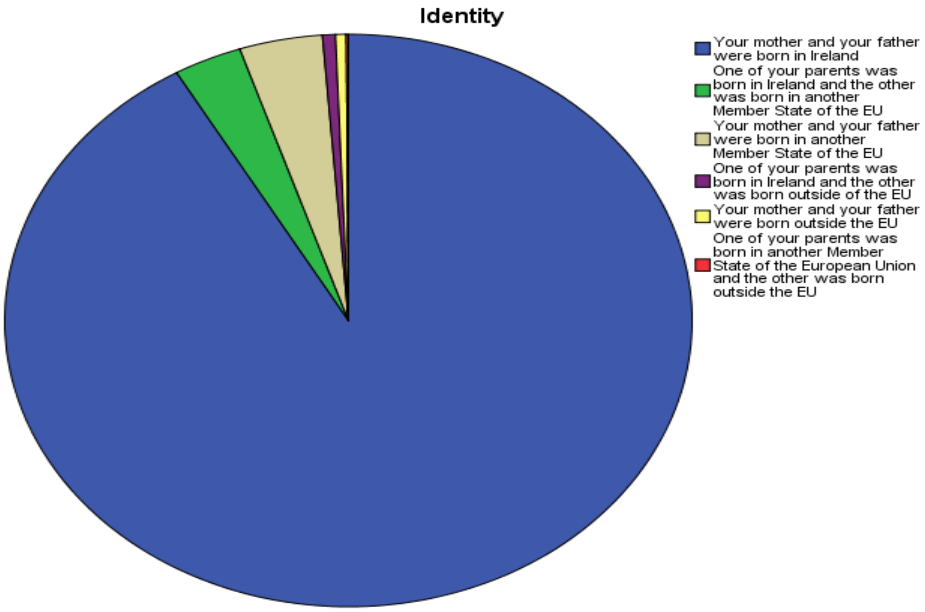


Figure 4 Identity of Sample

Marital Status

Figure 5 depicts the marital status of respondents to the survey. Of the participant surveyed 334 (33.3%) indicated they were not married, while 536 (53.4) indicated that they were married, 62 (6.2%) were separated/ divorced and 71 (7.1%) were widowed.

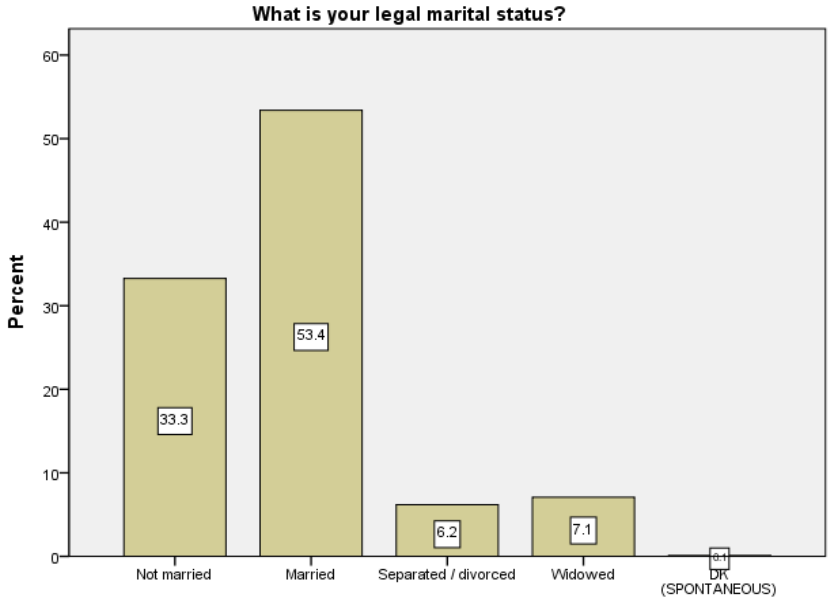


Figure 5 Marital Status

Household Living Situation

In relation to household living situation (Figure 6), 262 (26.2%) of respondents stated that they were single/ living alone, 726 (72.2%) indicated that they were living together/ shared household, whereas 10 (1%) suggested that they were in a serious relationship but not living together.

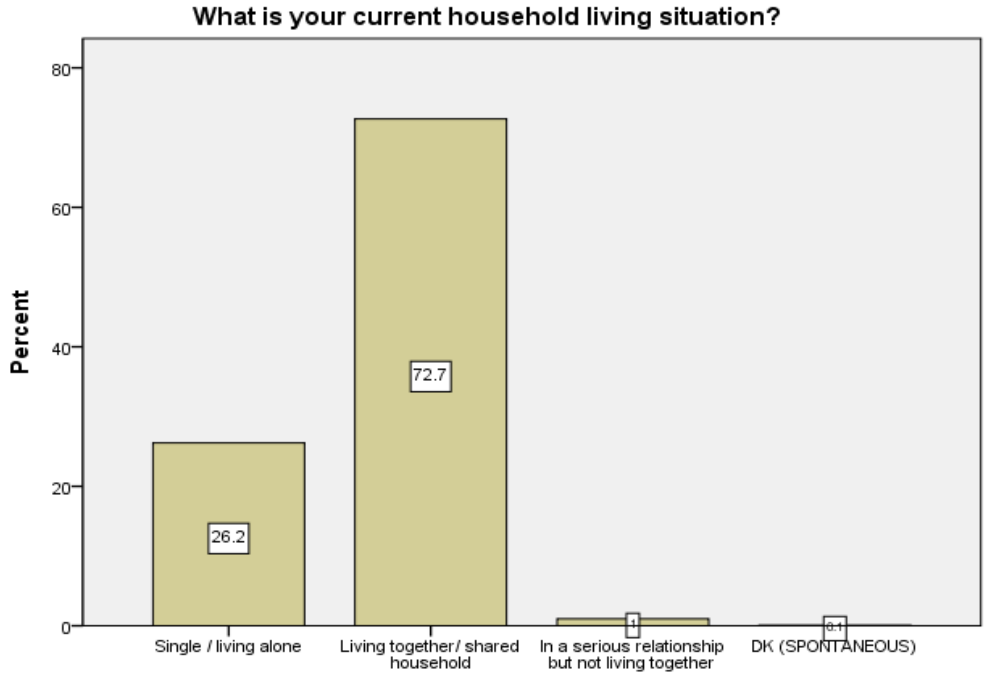


Figure 6 Household Living Situation

Parenting

In relation to parenting, 649 (64.6%) respondents indicated that they had children under the age of 15 years, compared to 356 (35.4%) who did not have children. Concerning children over the age of 15 years, 622 (61.9%) indicated that they had no children compared with 383 (38.1%) who indicated that they did have children over the age of 15 years.

Educational Attainment

In relation to the highest level of educational attainment of respondents, 7 (.7%) have only pre-primary education, 65 (6.5%) have only primary education, 190 (19.1%) have lower secondary, 261 (26.2%) have upper secondary education, 165 (16.6%) have post-secondary non-tertiary education, 130 (13.1%) have first stage tertiary education, and 178 (17.9%) have attained the second stage of tertiary education (Figure 7).

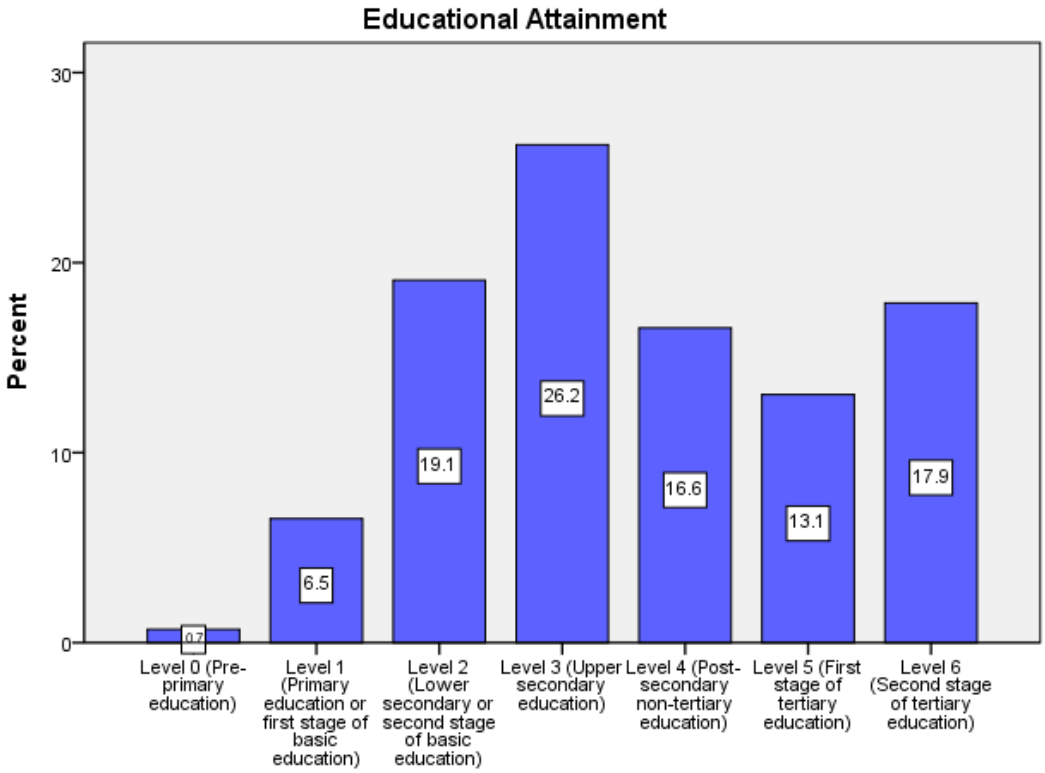


Figure 7 Educational Attainment

Employment Status

Table 5 presents the main status of employment from the population sample. In terms of employment 41.4% of respondents were in either full or part-time employment, 11.9% were unemployed, 13.6% were in retirement, 21.1% were homemakers/ fulltime parent/ carer and 4.9% were students.

Table 5 Employment Status: What is your current "main" status of employment?

	Frequency	Valid Percent
Carries out a job or profession, including unpaid work for a family business or holding, including an apprenticeship or paid traineeship etc.	15	**1.5%**
Full-time	274	**27.3%**
Part-time	142	**14.1%**
Unemployed	119	**11.9%**
Pupil, student, further training, unpaid work experience	49	**4.9%**
In retirement or early retirement or has given up business	137	**13.6%**
Permanently disabled	17	**1.7%**
In military or community services	1	**.1%**
Full-time homemaker, parent or carer	212	**21.1%**
Inactive	26	**2.6%**
Other (SPECIFY)	11	**1.1%**
Don't Know	1	**.1%**
Total	1004	**100.0**

Ability to Pay for Medication

In total, 28.6% of participants said they found it 'very easy' to pay for medication needed, 40.1% found it 'fairly easy', 20.6% found it 'fairly difficult' and 10.6% found it 'very difficult' (Figure 8).

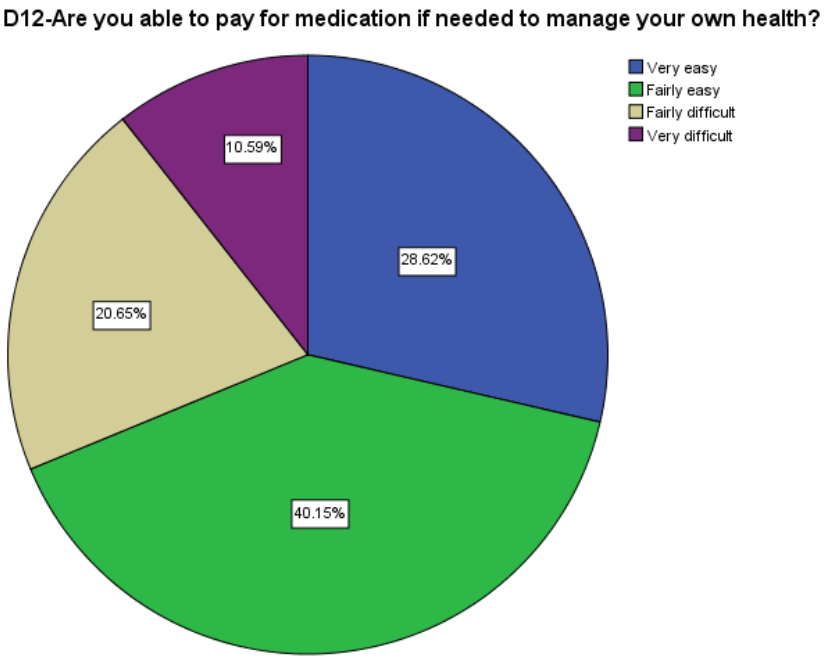


Figure 8 Ability to pay for medication.

Ability to pay to see a doctor

Of the respondents, 75.1% found it very easy or fairly easy to pay to see a doctor, compared with 24.1% who had some degree of difficulty in paying to attend a doctor.

Self-perceived social class

Figure 9 below shows the distribution of social classes (self-rated) in the sample.

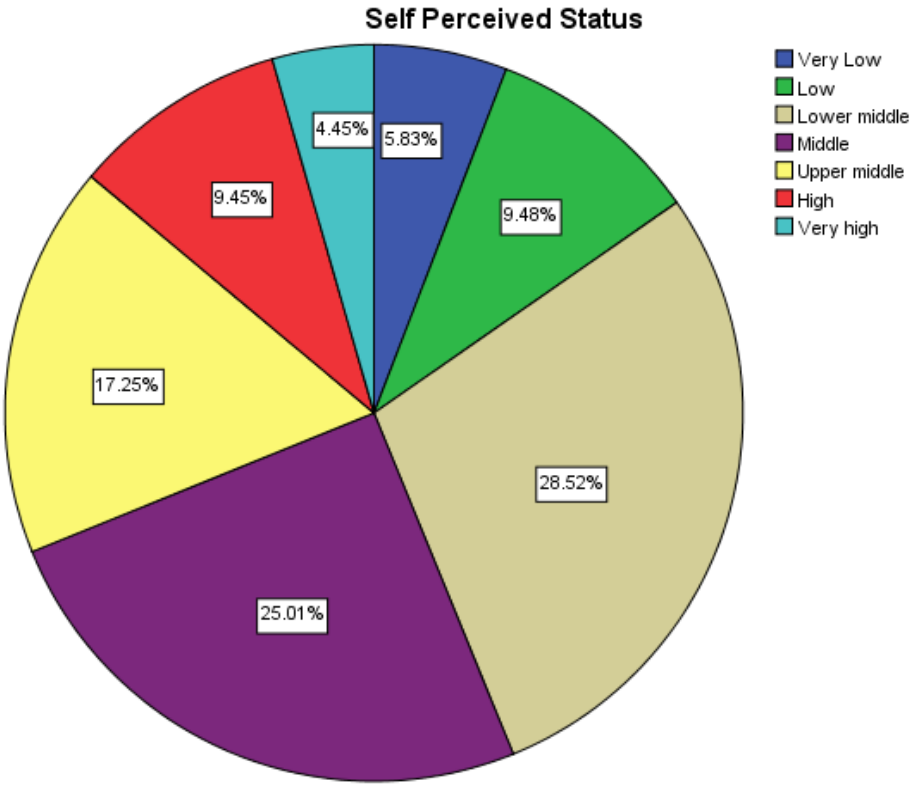


Figure 9 Self-Perceived Social Class

Household Net Income

In relation to household income (Figure 10), 10.2% of households have less than €800 income per month, 25% have €800 to under €1,350, 18.8% have €1,350 to under €1,850, 13.7% have €1,850 to under €2,400, 11.5% have €2,400 to under €2,950, and 21.9% of respondents had in excess of €2,950 in income.

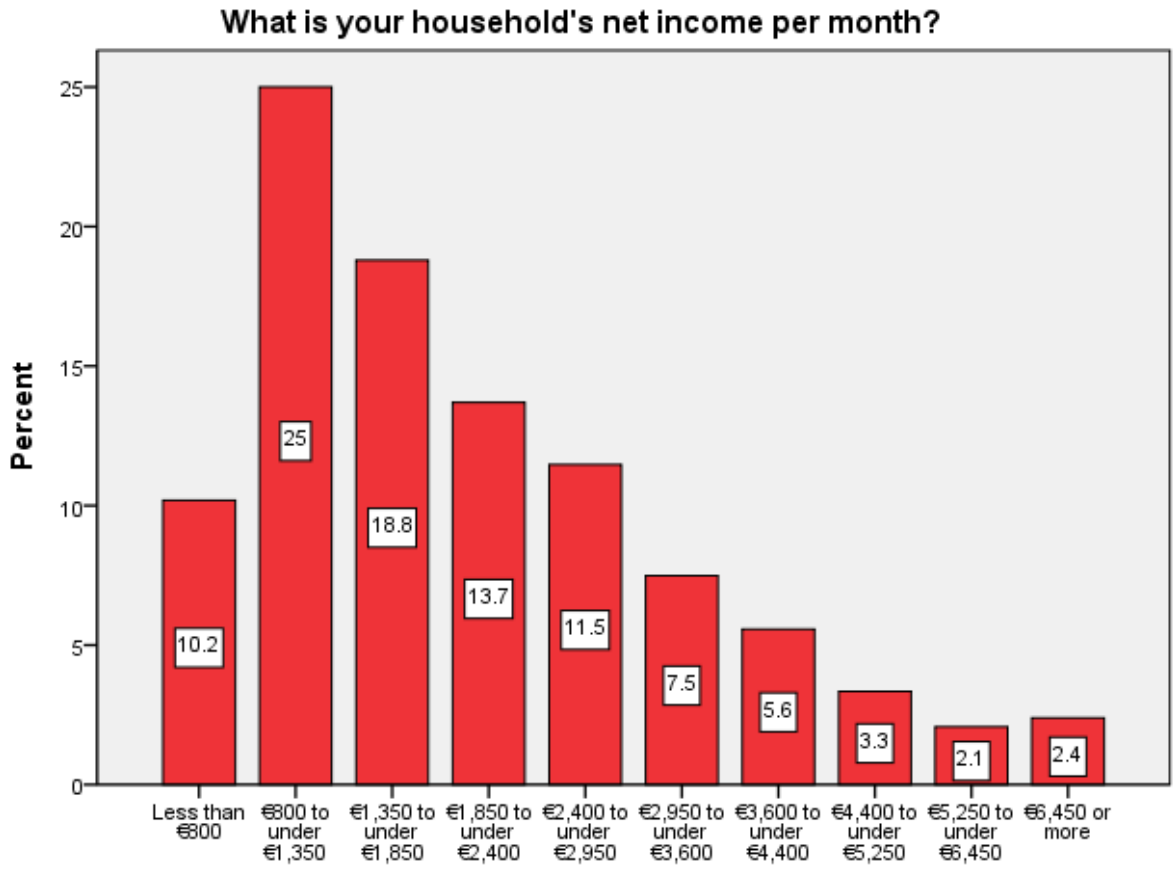


Figure 10 Household Net Income

Health Behaviours and Outcome Related Descriptives

In relation to outcomes, information was collected on perceptions of one's personal health, health service use, health behaviour, social interaction and a previously validated short measure of functional literacy (Newest Vital Sign).

Self-Rated Health

In relation to personal health 79.3% of respondents rated their personal health as 'good' or 'very good', in comparison to 3.7% of respondents who rated their personal health as 'bad' or 'very bad'. Regarding long term illness 30.2% of respondents indicated that they had 'one or more long term illness'. Of those with health problems 24.8% indicated that they were 'severely limited' by their illness, 43.2% said they were 'limited but not severely' by their health problems.

Health Service Use

With regards to health insurance (Figure 11) 29.4% of participants have public insurance, 43% have private insurance, 4.8% have public and private insurance and 22.9% have no insurance.

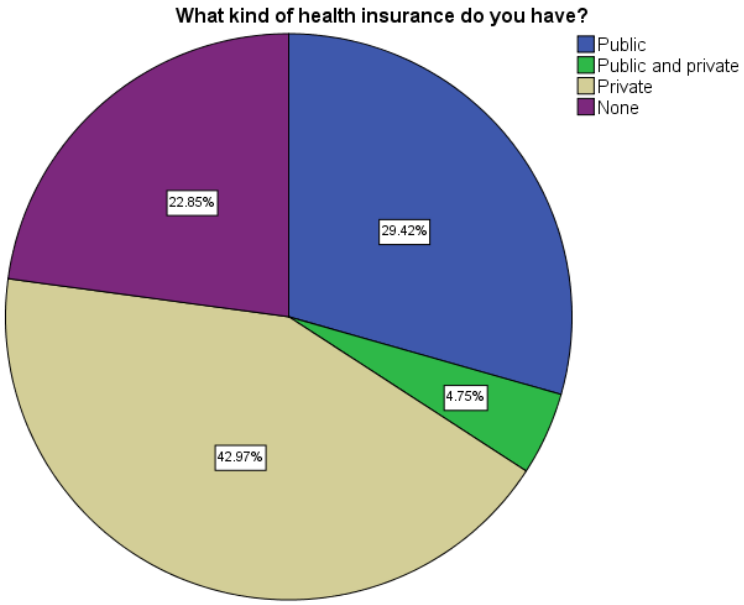


Figure 11 Health Insurance

In terms of emergency service usage 75.6% of participants did not use any emergency service in the previous two years, 19.6% used the service 1-2 times, 3.5% used the service 3-5 times and 1.3% used the emergency services more than 6 times. In terms of hospital usage (Figure 12), 55.2% of respondents did not use any hospital service in the past year, 33.5% attended hospital 1-2 times, 6.6% attended 3-5 times, and finally 4.8% attended more than 6 times.

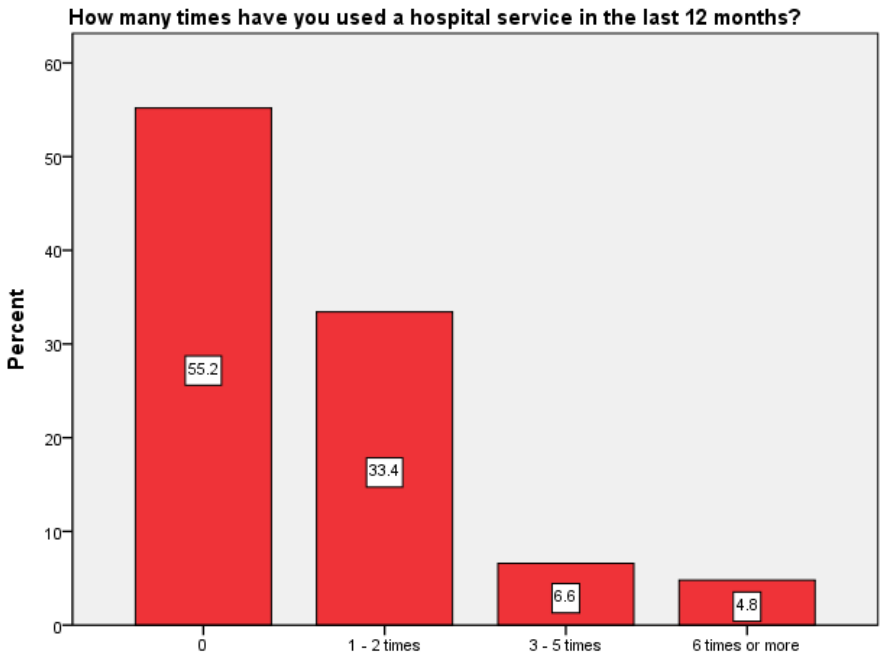


Figure 12 Hospital Service Use

Health behaviours

Smoking

With regards to smoking (Figure 13), 51% of respondents have never smoked, 27.12% smoke every day, 20.72% previously smoked but have now stopped, and 0.66% smoke occasionally.

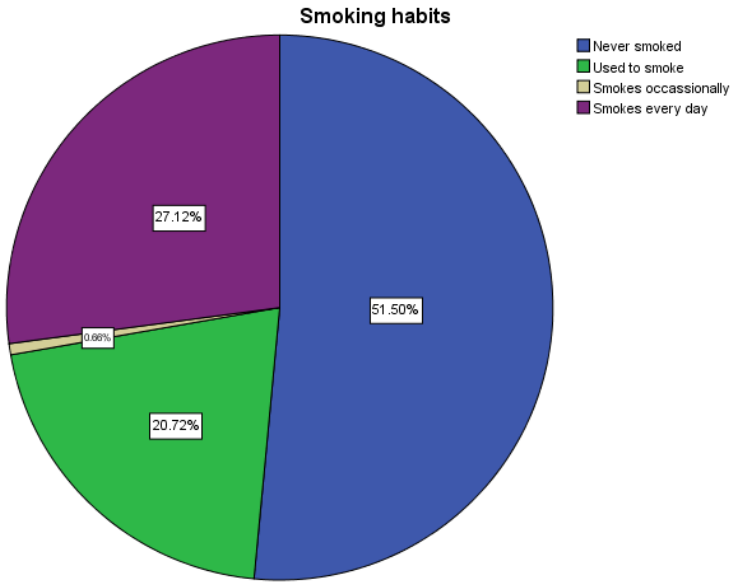


Figure 13 Smoking Behaviour

Alcohol Consumption

In relation to alcohol consumption, an alcohol consumption index was used (Garretsen 1983). 37.6% respondents were classified as having light alcohol consumption, 20.2% had moderate alcohol consumption, 8.3% had excessive alcohol consumption, and 2.2% had very excessive alcohol consumption.

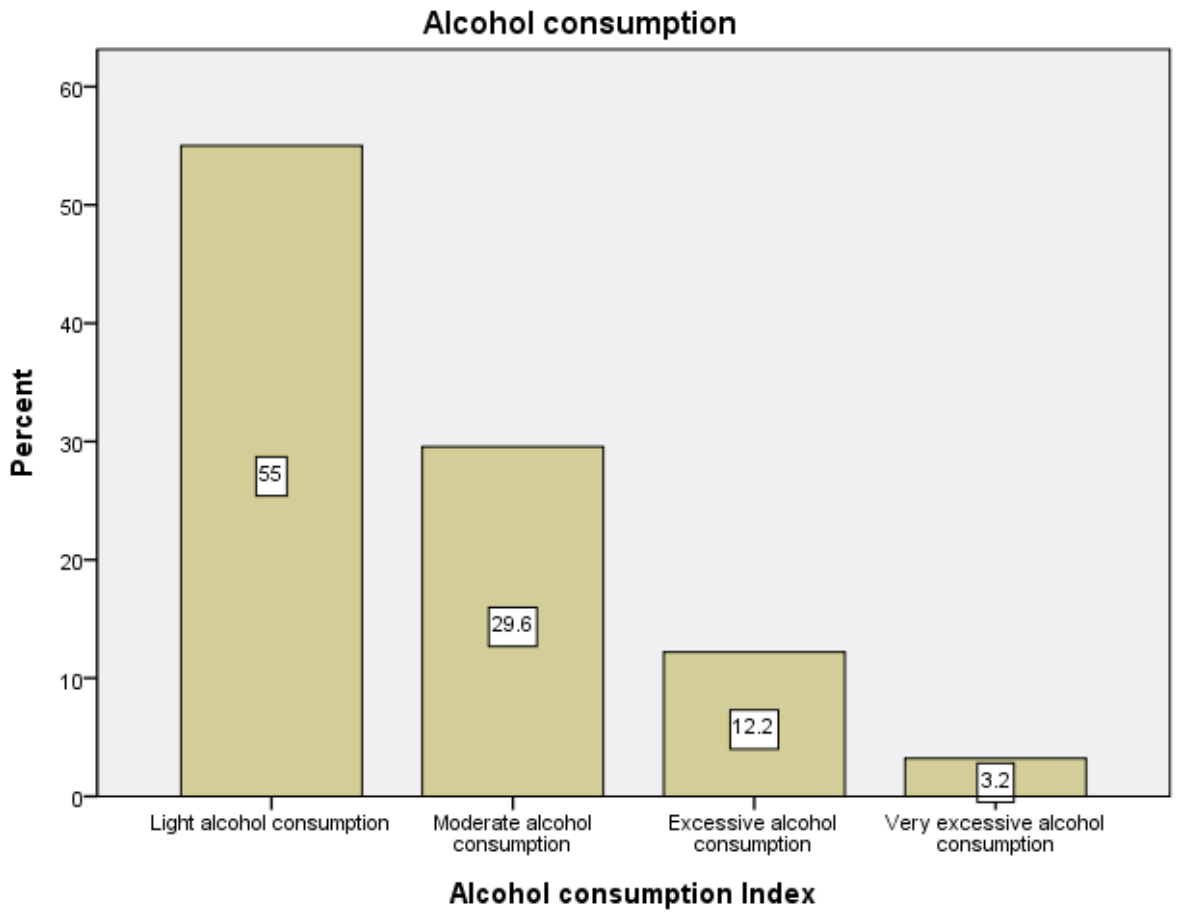


Figure 14 Alcohol Consumption Index

Exercise

In relation to exercise 36.6% exercise every day, 30.6% exercise a few times per week, 10.9% exercise a few times per month, 18.5% do not exercise at all and 3.4% are unable to exercise.

Social interaction

Of the respondents 85.8% indicated that they had a family member or a friend available to take them to the doctor. Concerning community involvement (Figure 15) 3.1% are involved almost every day, 9.6% a few times per week, 12% a few times per month, 12% a few times per year and 63.4% who are not involved in their community at all.

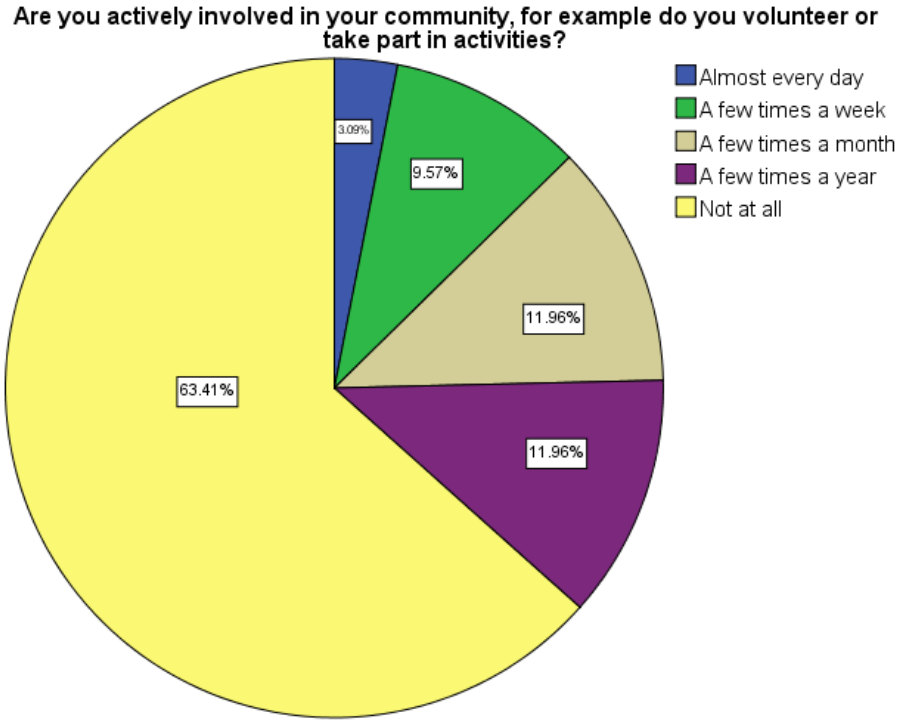


Figure 15 Community Involvement

SECTION 5: A DESCRIPTIVE OVERVIEW OF HEALTH LITERACY

This section presents a descriptive overview of the responses to the newly developed Health Literacy measure in terms of Cure and Care, Disease Prevention, and Health Promotion (Table 6).

Table 6 Frequency Table for Health Literacy Items

Health Literacy Section of The HLS.EU Frequencies				**Total (n)**	**Very Easy (%)***	**Fairly Easy (%)***	**Fairly Difficult (%)***	**Very Difficult (%)***	**No Answer**
Cure and Care	Evaluate information to manage disease (symptoms, complaints, illness and treatments)	**No.**	**On a scale from very easy to very difficult, how easy would you say it is to:**						
		6	…understand the leaflets that come with your medicine?	977	372 (38.1)	434 (44.4)	124 (12.7)	47 (4.8)	28 (2.8)
		9	…judge how information from your doctor applies to you?	986	365 (37)	517 (52.4)	91 (9.2)	13 (1.3)	19 (1.9)
		10	…judge the advantages and disadvantages of different treatment options?	957	206 (21.5)	446 (46.6)	226 (23.6)	79 (8.3)	48 (4.8)
		11	…judge when you may need to get a second opinion from another doctor?	941	195 (20.7)	407 (43.3)	238 (25.3)	101 (10.7)	64 (6.4)
		12	…judge if the information about illness in the media is reliable? ***(Instructions: TV, Internet or other media)***	904	126 (13.9)	383 (42.4)	278 (30.8)	117 (12.9)	101 (10)
		13	…use information the doctor gives you to make decisions about your illness?	967	268 (27.7)	561 (58)	107 (11.1)	31 (3.2)	38 (3.8)
	Understand information to manage disease (symptoms, complaints, illness and treatments)	5	…understand what your doctor says to you?	992	440 (44.4)	443 (44.7)	83 (8.4)	26 (2.6)	13 (1.3)
		8	…understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?	997	519 (51.1)	431 (43.2)	38 (3.8)	9 (0.9)	8 (0.8)
		14	…follow the instructions on	997	519	435	38	5	8

			medication?		(51.6)	(43.6)	(3.8)	(0.5)	(0.8)
		15	…call an ambulance in an emergency?	995	626 (62.9)	327 (32.9)	32 (3.2)	10 (1.0)	10 (1.0)
		16	…follow instructions from your doctor or pharmacist?	1000	570 (57)	392 (39.2)	32 (3.2)	6 (0.6)	5 (0.5)
	Access information to manage disease (symptoms, complaints, illness and treatments)	3	…find out what to do in case of a medical emergency?	974	371 (38.1)	435 (44.7)	121 (12.4)	47 (4.8)	31 (3.1)
		4	…find out where to get professional help when you are ill? ***(Instructions: such as doctor, pharmacist, psychologist)***	984	421 (42.8)	472 (48)	63 (6.4)	28 (2.8)	21 (2.1)
		7	…understand what to do in a medical emergency?	972	361 (35.9)	423 (43.5)	139 (14.3)	49 (4.9)	33 (3.3)
		1	…find information about symptoms of illnesses that concern you?	989	345 (34.9)	481 (48.6)	116 (11.7)	47 (4.8)	16 (1.6)
		2	…find information on treatments of illnesses that concern you?	966	288 (29.8)	507 (52.5)	132 (13.7)	39 (4.0)	39 (3.9)
Disease Prevention	Ability to access information on risk factors for health	17	…find information about how to manage unhealthy behaviour such as smoking, low physical activity and drinking too much?	967	418 (43.2)	442 (45.7)	81 (8.4)	26 (2.7)	38 (3.8)
		19	…find information about vaccinations and health screenings that you should have? ***(Instructions: breast exam, blood sugar test, blood pressure)***	957	276 (28.8)	494 (51.6)	135 (14.1)	52 (5.4)	48 (48)
		20	…find information on how to prevent or manage conditions like being overweight, high blood pressure or high cholesterol?	981	379 (38.6)	479 (48.8)	100 (10.2)	23 (2.3)	24 (2.4)
		21	…understand health warnings about behaviour such as smoking, low physical activity and drinking too much?	977	459 (47)	445 (45.5)	59 (6)	14 (1.4)	28 (2.8)
		24	…judge how reliable health warnings are, such as	969	397	499	58 (6)	15	36

			smoking, low physical activity and drinking too much?		(41)	(49.7)		(1.5)	(3.6)
	Evaluate information to manage risk factors for health	22	…understand why you need vaccinations?	969	347 (35.8)	470 (48.5)	109 (11.2)	43 (4.3)	36 (3.6)
		23	…understand why you need health screenings? ***(Instructions: breast exam, blood sugar test, blood pressure)***	973	363 (37.3)	492 (50.6)	93 (9.6)	25 (2.6)	32 (3.2)
		25	…judge when you need to go to a doctor for a check-up?	1000	494 (49.4)	409 (40.9)	82 (8.2)	15 (1.5)	5 (0.5)
		26	…judge which vaccinations you may need?	958	264 (27.6)	443 (46.2)	196 (20.5)	55 (5.7)	47 (4.7)
		27	…judge which health screenings you should have? ***(Instructions: breast exam, blood sugar test, blood pressure)***	967	257 (26.6)	441 (45.6)	212 (21.9)	57 (5.9)	38 (3.8)
		29	…decide if you should have a flu vaccination?	962	361 (37.5)	429 (44.6)	125 (13)	47 (4.9)	43 (4.3)
	Make decisions to manage risk factors for health	18	…find information on how to manage mental health problems like stress or depression?	929	245 (26.4)	394 (42.2)	176 (18.9)	114 (12.3)	76 (76)
		28	…judge if the information on health risks in the media is reliable? ***(Instructions: TV, Internet or other media)***	919	169 (18.4)	412 (44.8)	241 (26.2)	97 (10.6)	86 (8.6)
		30	…decide how you can protect yourself from illness based on advice from family and friends?	970	283 (29.2)	513 (52.9)	146 (15.1)	28 (2.9)	35 (3.5)
		31	…decide how you can protect yourself from illness based on information in the media? ***(Instructions: Newspapers, leaflets, Internet or other media?)***	949	191 (20.1)	433 (45.6)	245 (25.8)	80 (8.4)	56 (5.6)
Health Promotion	Access information to manage resources for health and	33	…find out about activities that are good for your mental well-being? ***(Instructions: meditation, exercise, walking, pilates***	981	329 (33.5)	455 (46.4)	125 (12.7)	72 (7.3)	24 (2.4)

	wellbeing + Evaluate information to manage resources for health and wellbeing		***etc.)***						
		34	…find information on how your neighbourhood could be more health-friendly? ***(Instructions: Reducing noise and pollution, creating green spaces, leisure facilities)***	935	196 (21)	391 (41.8)	200 (21.4)	148 (15.8)	70 (7.0)
		35	…find out about political changes that may affect health? ***(Instructions: legislation, new health screening programmes, changing of government, restructuring of health services etc.)***	921	164 (17.8)	355 (38.5)	202 (21.9)	200 (21.7)	84 (8.4)
		36	…find out about efforts to promote your health at work?	785	223 (28.4)	390 (49.7)	108 (13.8)	64 (8.2)	220 (21.9)
		41	…judge how where you live affects your health and well-being? ***(Instructions: Your community, your neighbourhood)***	977	279 (28.6)	470 (48.1)	133 (13.6)	95 (9.7)	28 (2.8)
		42	…judge how your housing conditions help you to stay healthy?	971	298 (30.7)	484 (49.2)	105 (10.8)	84 (8.7)	34 (3.4)
		43	…judge which everyday behaviour is related to your health?***(Instructions: Drinking and eating habits, exercise etc.)***	979	306 (31.3)	504 (51.5)	107 (10.9)	62 (6.3)	26 (2.6)
	Understand information to manage resources for health and wellbeing	32	…find information on healthy activities such as exercise, healthy food and nutrition?	991	423 (42.7)	479 (48.3)	69 (7)	20 (2)	14 (1.4)
		37	…understand advice on health from family members or friends?	983	334 (34)	542 (55.1)	92 (9.4)	15 (1.5)	22 (22.2)
		38	…understand information on food packaging?	989	255 (25.8)	413 (41.8)	185 (18.7)	136 (13.8)	16 (1.6)
		39	…understand information in the media on how to get healthier? ***(Instructions: Internet, newspapers, magazines)***	960	252 (26.1)	515 (53.3)	139 (14.4)	60 (6.2)	39 (3.9)

		40	…understand information on how to keep your mind healthy?	972	267 (27.5)	480 (49.4)	142 (14.6)	83 (8.5)	33 (3.3)
	Make decisions to manage resources for health and wellbeing	44	…make decisions to improve your health?	997	407 (40.8)	479 (48)	87 (8.7)	24 (2.4)	8 (0.8)
		45	…join a sports club or exercise class if you want to?	988	438 (44.3)	433 (43.8)	74 (7.5)	43 (4.4)	17 (1.7)
		46	…influence your living conditions that affect your health and well-being? ***(Instructions: Drinking and eating habits, exercise etc.)***	974	332 (34.1)	501 (85.5)	93 (9.5)	48 (4.9)	31 (3.1)
		47	…take part in activities that improve health and well-being in your community?	983	316 (32.1)	529 (53.8)	88 (9.0)	50 (5.1)	22 (2.2)

*Percentage given is valid percentage of cases where an answer was given. Unanswered cases are excluded.

Notable findings

Cure and Care

(Q 6) 17.5% of people have difficulty understanding leaflets that accompany medicines.

There was no significant difference evident between males and females in understanding medical leaflets, similarly differences between age groups were also insignificant. There is a significant difference between education groups and the ability to understand leaflets that accompany medicine ($F= 5.511$, $p \leq .01$) with those with lesser education indicating greater difficulty. There is also a significant difference between income groups and the ability to understand medical leaflets ($F= 7.983$, $p \leq .01$), in this instance those with average income indicated a marginally better ability to understand medical leaflets than those with high incomes and finally those with low incomes had the most difficulty. A significant difference was also evident between alternative social classes and one's ability to understand leaflets that accompany medicine ($F= 20.807$, $p \leq .01$), those self-rated as being in lower social class had most difficulty, followed by middle class followed by upper class who had least difficulty.

(Q 12) 43.7% of respondents find it difficult to judge the reliability of health information from the media. There was no significant difference evident between males and females, and no differences were evident among different age groups. There is a significant difference between education groups and the ability to judge the reliability of health information from the media ($F= 2.356$, $p \leq .05$). Again those with most education had a greater ability to comprehend health information. There is also a significant difference among income groups and the ability to appraise the reliability of health information received ($F= 5.289$, $p \leq .01$) with the lowest level of ability ranging from those with lowest to highest incomes. Differences were also evident between ones perception of social class and one's ability to judge the reliability of health information in the media ($F= 8.983$, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class people.

(Q13) 85.7% of people find it easy to use information given to them by a doctor to make decisions about their health. There was no significant difference evident between males and females, or among different age groups. There was no significant difference between education groups and the ability to use information provided by a doctor. Similarly there was no significant difference between income and the ability to make decisions regarding one's health. There is a significant difference among ones perception of social class and one's ability to use information by their doctor ($F= 17.254$, $p \leq .01$), lower class people had most difficulty, followed by middle class people followed by upper class people.

(Q5) 89.4% of find it easy to understand what the doctor says to them. There was no significant difference evident between males and females, while differences between age group were also insignificant. A significant difference between education groups and the ability to understand what a doctor says was evident ($F= 3.723$, $p \leq .01$), with those above level 2 education having a significant ability to understand their doctor above those who have attained less than level two education. There is a significant difference among income groups and the ability to comprehend what a doctor says ($F= 3.358$, $p \leq .05$), those on average incomes scored highest, followed by those on high incomes and finally those on low incomes.

A significant difference was also found among ones perception of social class and one's ability to comprehend what a doctor says (F= 10.184, $p \leq .01$), lower class people had most difficulty, followed by middle class people, and finally upper class people.

(Q8) 94.3% of people understand instructions from doctors and pharmacists on how to take prescription medications. No significant difference was found between males and females, while differences between age group were also insignificant. There is a significant difference between education groups and the ability to understand instructions from both doctors and pharmacists on how to take medicine (F= 5.320, $p \leq .01$) with those with lower education predominantly expressing lesser ability in comprehension terms. There is also a significant difference among income groups and the ability to take instructions regarding how to correctly take medication (F= 8.842, $p \leq .01$), those on most income scored highest, followed by those on average incomes and finally those on low income. A significant difference was also found between ones perception of social class and one's ability to understand instructions from doctors and pharmacists on how to take medicines (F= 7.796, $p \leq .01$), middle class people had most difficulty, followed by lower class people, followed by upper class people.

(Q7) 19.2% of people would find it difficult to understand what to do in a medical emergency. There was no significant difference evident between males and females. Differences between age groups were also insignificant. There is a significant difference between education groups and the ability to know what to do in an emergency situation (F= 3.767, $p \leq .01$). Interestingly those with most education (Levels 4, 5 and 6) and those with least education (Levels 0 and 1) displayed the greatest ability in understanding what to do in an emergency, compared to those with level 2 and 3 education. There is a significant difference among income groups and the ability to understand what to do in a medical emergency (F= 7.487, $p \leq .01$), the best score ranged from those with the highest incomes to those with the lowest. There is a significant difference between ones perception of social class and one's ability to understand what to do in an emergency (F= 9.509, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class people.

(Q11) 36% of people would find it difficult to judge if they needed to get a second opinion from a doctor. There was no significant difference evident between males and females or between age groups. There is a significant difference among income groups and the ability to judge whether a second medical opinion is needed ($F= 5.294$, $p \leq .01$), the best score ranged from those with the highest incomes to those with the lowest. There is also a significant difference between ones perception of social class and one's ability to judge whether they need a second opinion ($F= 14.427$, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class people.

Disease Prevention

(Q17) 11.1% of people find it difficult to find information about how to manage unhealthy behaviour such as smoking, low physical activity and drinking too much. There is a significant difference between mean scores on Q17 between males (1.78) and females (1.65) at the level $t = 2.619$, $p \leq .01$. Differences between age groups were insignificant. There is a significant difference among education groups and the ability to find information on unhealthy behaviour ($F= 3.892$, $p \leq .01$) as those with less education progressively find it more difficult to access information. There is a significant difference among income groups and the ability to find information on how to manage unhealthy behaviour ($F= 12.261$, $p \leq .01$), again the highest score ranged from those with the highest to the lowest incomes. There is also a significant difference between ones perception of social class and one's ability to manage unhealthy behaviour ($F= 8.237$, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q18) 31.2% of people find it difficult to find information on mental health issues such as stress and depression. There was no significant difference between males and females. Differences between age groups were also insignificant. There is a significant difference among education groups and the ability to find information on mental health issues ($F= 2.670$, $p \leq .05$) those with less education finding it more difficult to access information on

mental health related issues. There is also a significant difference between income groups and the ability to find information on mental health issues (F= 8.431, $p \leq .01$), scores for average and high incomes were the same and were significantly different from low incomes. There is a significant difference between ones perception of social class and one's ability to find information on mental health issues (F= 16.766, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q19) 19.5% of people find it difficult to find information about vaccinations and health screenings that they require. There is a significant difference between mean scores on Q19 between males (2.05) and females (1.90) at the level $t = 2.829$, $p \leq .01$. Differences between age groups were insignificant. There was no significant difference among education groups and the ability to find information about vaccinations and health screenings. There is a significant difference among income groups and the ability to locate information about vaccinations and health screenings (F= 10.510, $p \leq .01$), the best score ranged from those with the highest income to those with the lowest. There is also a significant difference between ones perception of social class and one's ability to find information about vaccines and health screenings (F= 16.010, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q26) 26.2% of people find it difficult to judge which vaccinations they require. There is a significant difference between mean scores on Q26 between males (2.14) and females (1.97) at the level $t = 3.141$, $p \leq .01$. Differences between age groups were insignificant. There is a significant difference among education groups and the ability to judge which vaccinations they require (F= 3.954, $p \leq .01$), with those with lesser education more likely to have difficulty judging such information. There is a significant difference among income groups and the ability to judge which vaccinations they require (F= 13.106, $p \leq .01$), the best score ranged from those with the highest income to those with the lowest. There is a significant difference among ones perception of social class and one's ability to judge which vaccinations they require (F= 15.866, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q33) 20% of people find it difficult to find out about activities that are good for their mental health. There was no significant difference between males and females or between age groups. There was no significant difference among education groups and the ability to find out information on activities that are good for one's mental health. There is a significant difference among income groups and the ability to find out information on activities that are good for one's mental health (F= 10.943, $p \leq .01$) with those on average incomes scoring the best results, followed by those on high incomes and finally those on low incomes. There is also a significant difference between one's perception of social class and one's ability to find information about activities that are good for one's mental health (F= 24.200, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

Health Promotion

(Q34) 37.2% find it difficult to find information on how to make their neighbourhood more health friendly (e.g. in relation to noise and pollution, creating green spaces and leisure facilities) There was no significant difference evident between males and females or among different age groups. There is a significant difference between education groups and the ability to make one's neighbourhood more health friendly (F= 2.53, $p \leq .05$), with those with least education expressing greater difficult in accessing such information. There is a significant difference among income groups and the ability to make ones neighbourhood more health friendly (F= 7.055, $p \leq .01$) with those on average incomes scoring the best results, followed by those on high incomes and finally those on low incomes. There is a significant difference between one's perception of social class and one's ability to make their neighbourhood more health friendly (F= 25.622, $p \leq .01$) lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q35) 43.6% of people find it difficult to get information on political matters which affect healthcare (e.g. legislation, new health screening programmes, changes in government, or the restructuring of the health service). There was no significant difference evident between males and females or among different age groups. There was no significant difference among education groups and the ability to find out information of

political matters which affect healthcare, however it is important to note that this was marginally insignificant and in general those with less education expressed the greatest difficulties. There is also a significant difference among income groups and the ability to obtain information on political matters that affect healthcare ($F= 5.468$, $p \leq .01$) with those on average incomes scoring the best results, followed by those on high incomes and finally those on low incomes. There is a significant difference among one's perception of social class and one's ability to find information on political matters which affect healthcare ($F= 32.650$, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q32) 91% of people find it easy to get information on healthy activities such as exercise, healthy food and nutrition. There was a significant difference between mean scores on Q32 between males (1.74) and females (1.64) at the level $t = 2.267$, $p \leq .05$. Differences between age groups were insignificant. There was no significant difference among education groups and the ability to find out information on healthy activities ($F= 3.963$, $p \leq .01$), again those with most education were more likely to find it easy to get information on healthy activities. There is a significant difference among income groups and the ability to obtain information on healthy activities ($F= 9.832$, $p \leq .01$), the best scores ranged from those with the highest income to those with the lowest. There is a significant difference among one's perception of social class and one's ability to find information about healthy activities ($F= 9.942$, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q38) 32.5% of people find it difficult to understand the information on food packaging. There is a significant difference between mean scores on Q38 for both males (2.33) and females (2.11) at the level $t = 3.562$, $p \leq .01$. There is a significant difference between age groups and understanding food packaging ($F= 7.943$, $p \leq .01$) where there is a progressive decline in the ability to understand food packaging as one grows older. There is also a significant difference among education groups and the ability to understand information on food packaging ($F= 11.114$, $p \leq .01$) where those with most education found

information on packaging easier to understand. A significant difference among income groups and the ability to understand information on food packaging was evident (F= 13.538, $p \leq .01$) the best scores ranged from those with the highest income to those with the lowest, however the difference between those on high incomes and those on average incomes was minimal. Another significant difference was found among one's perception of social class and one's ability to understand information received on food packaging (F= 43.336, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q39) 20.6% of people find it difficult to understand information in the media on how to improve their health (e.g. internet, newspapers and magazines). There is a significant difference between mean scores on Q39 between males (2.12) and females (1.93) at the level $t = 3.645$, $p \leq .01$. There is also a significant difference between age group and the ability to understand information in the media on health (F= 4.247, $p \leq .01$). Older and younger people had most difficulty in understanding information in comparison to those aged between 25-49. There is also a significant difference among education groups and the ability to understand media information regarding health improvements (F= 5.326, $p \leq .01$) where one's ability progressively increased with education. There is a significant difference among income groups and the ability to understand media information on health improvements (F= 11.583, $p \leq .01$), the best score ranged from those with the highest income to those with the lowest. Another significant difference was evident between one's perception of social class and one's ability to understand information in the media on how to improve one's health (F= 22.040, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

(Q44) 89.6% of people find it easy to make decisions that improve their health. There is a significant difference between mean scores on Q44 between males (1.78) and females (1.69) at the level $t = 2.004$, $p \leq .05$. Differences between age groups were insignificant. A significant difference was found among education groups and the ability to make decisions that will improve their health (F= 8.110, $p \leq .01$) with those with less education more likely

to find it difficult to improve their health. There is also a significant difference among income groups and the ability to make decisions to improve their health (F= 19.144, $p \leq .01$) the best scores ranged from those with the highest income to those with the lowest. There is a significant difference between one's perception of social class and one's ability to make decisions to improve their health (22.844, $p \leq .01$), lower class people had most difficulty, followed by middle class people, followed by upper class.

Newest Vital Sign

The Newest Vital Sign is a validated measure of functional health literacy. The results indicate (Figure 16) that 19.9% of people have a high likelihood of limited functional health literacy, 22.5% of respondents may be at risk of low functional health literacy and 57.6% have adequate functional health literacy.

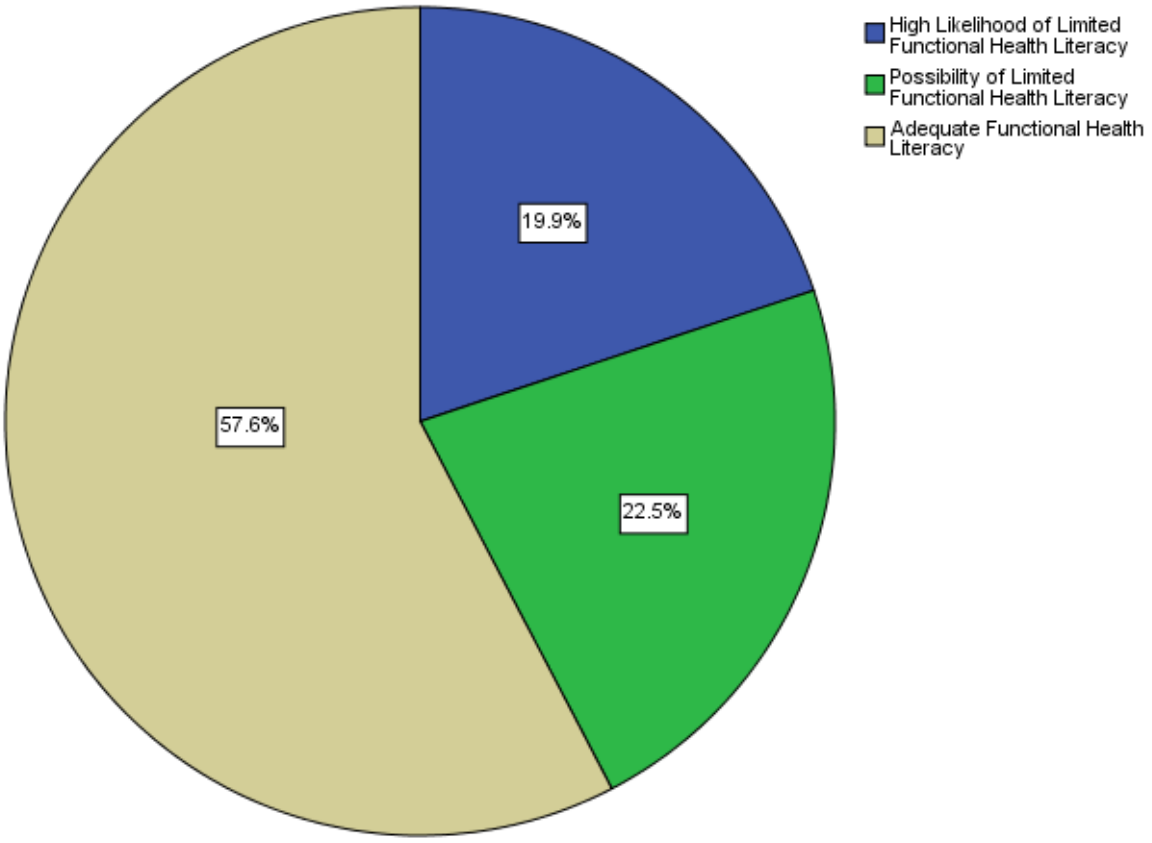
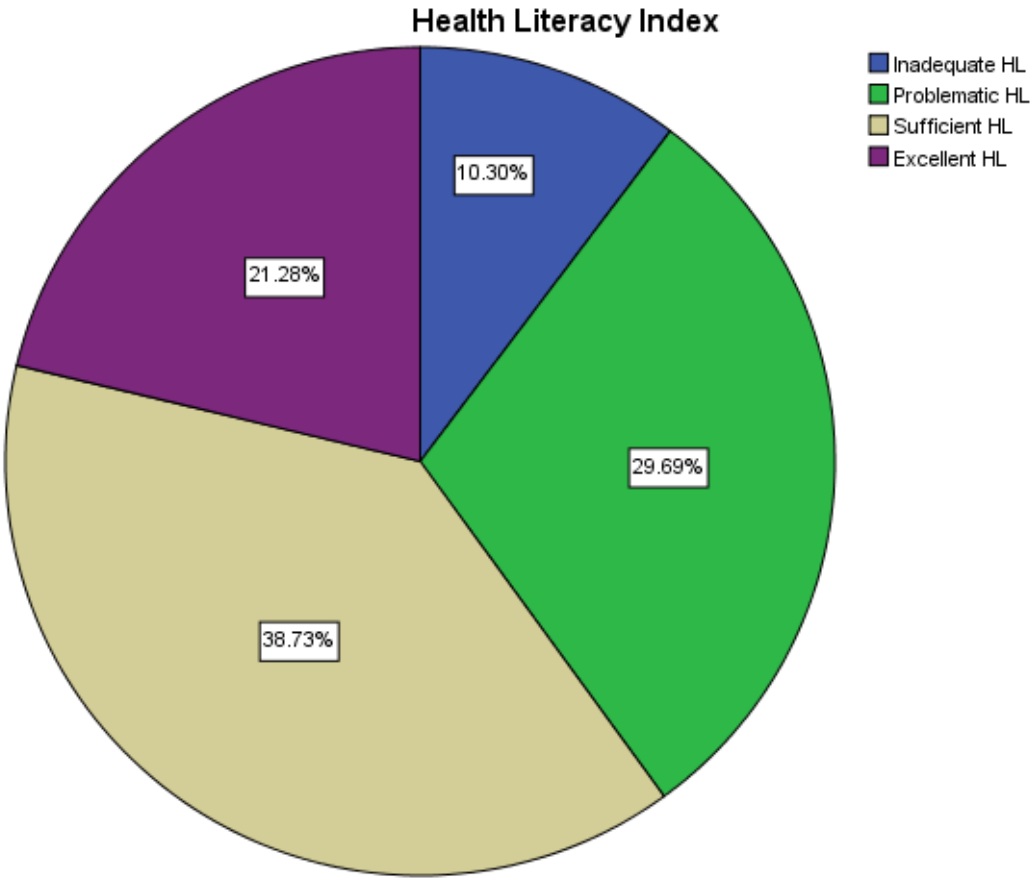


Figure 16 Newest Vital Sign

Health Literacy

Of the respondents 10.3% had inadequate health literacy, 29.7% had problematic health literacy (these categories may be grouped together and described as *limited health literacy*), 38.7% had sufficient health literacy and 21.3% had excellent health literacy.



Regional differences in Health Literacy

Table 7 presents the regional differences in relation to health literacy, general literacy and the three core aspects that make up health literacy namely, cure and care, disease prevention and health promotion. In relation to health literacy (Figure 17) Munster had the highest levels of health literacy (37.13), followed by Connacht/ Ulster (36.04), the rest of Leinster (35.85) and finally Dublin (33.31). In relation to general literacy (Newest Vital Sign Table 13, Figure 18) again Munster scored best (3.68) followed by Connacht/ Ulster (3.57), Dublin (3.56) and finally the rest of Leinster (3.51). With regards to the components of health literacy Munster scored best in all three, while Dublin scored the lowest.

Table 7 Regional Mean Scores for Health Literacy and Newest Vital Sign

	Health Literacy Index	Newest Vital Sign Score
Region		
Dublin	33.23	3.62
Rest of Leinster	35.30	3.60
Munster	36.68	3.76
Connacht/ Ulster	35.75	3.56

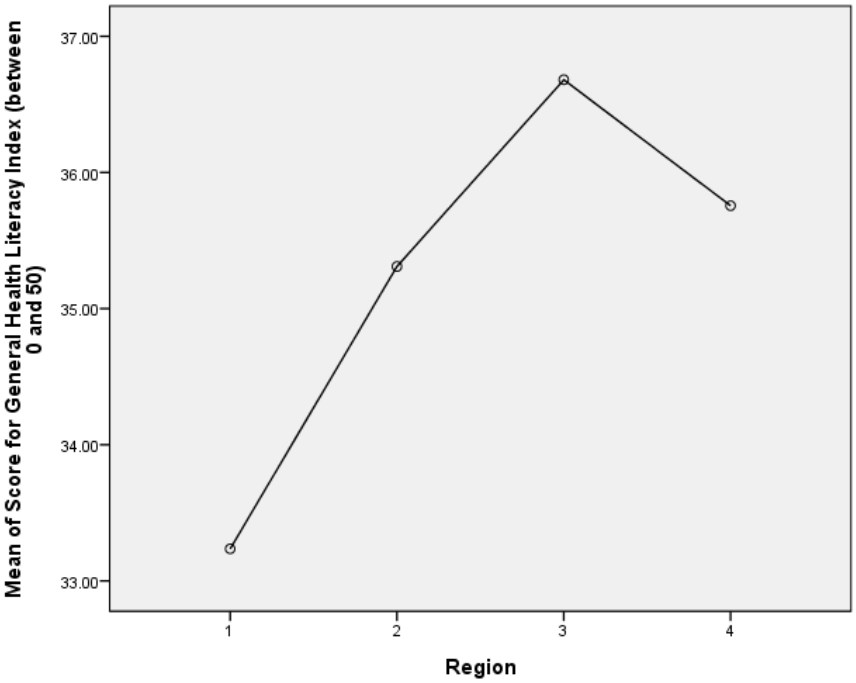


Figure 17 Average Health Literacy by Region.

1 = Dublin, 2 = Rest of Leinster, 3 = Munster, 4 = Connaught/Ulster.

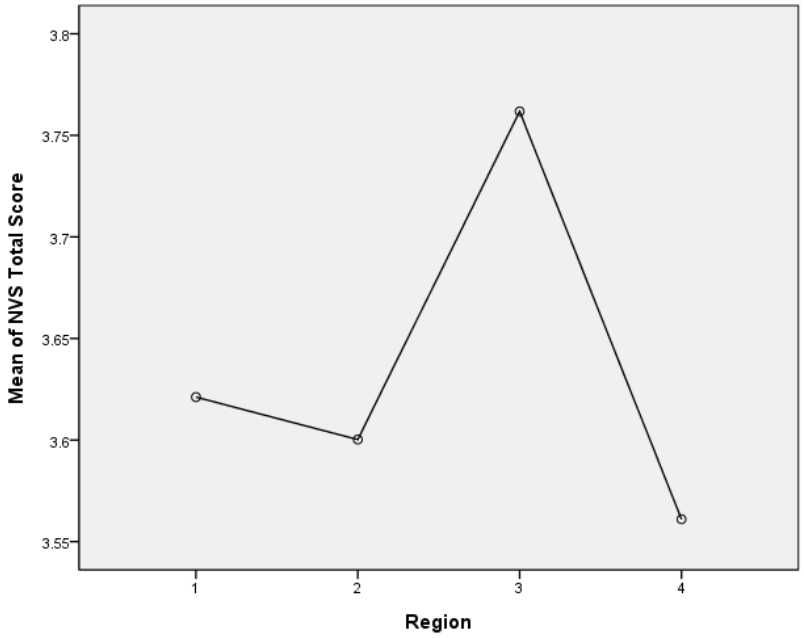


Figure 18 Average Newest Vital Sign Score by Region.

1 = Dublin, 2 = Rest of Leinster, 3 = Munster, 4 = Connaught/Ulster.

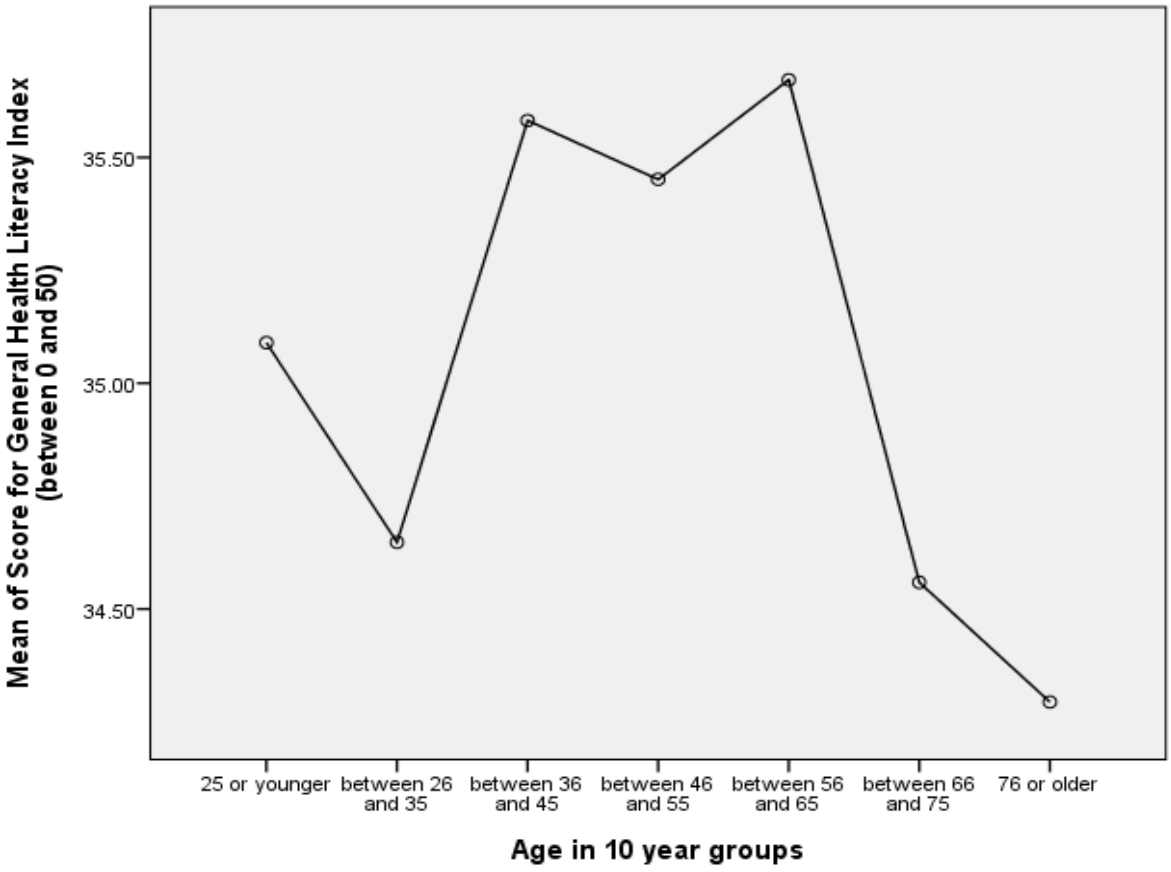
Gender and Health Literacy

There is a significant difference between mean scores on health literacy between males (34.36) and females (35.92) at the level t = - 3.115, $p \leq .01$. Similarly there is a significant difference in relation to the Newest Vital Sign for both males (3.51) and females (3.78) t = - 2.033, $p \leq .05$. Females appear to have higher health literacy and better functional literacy.

Age and Health Literacy

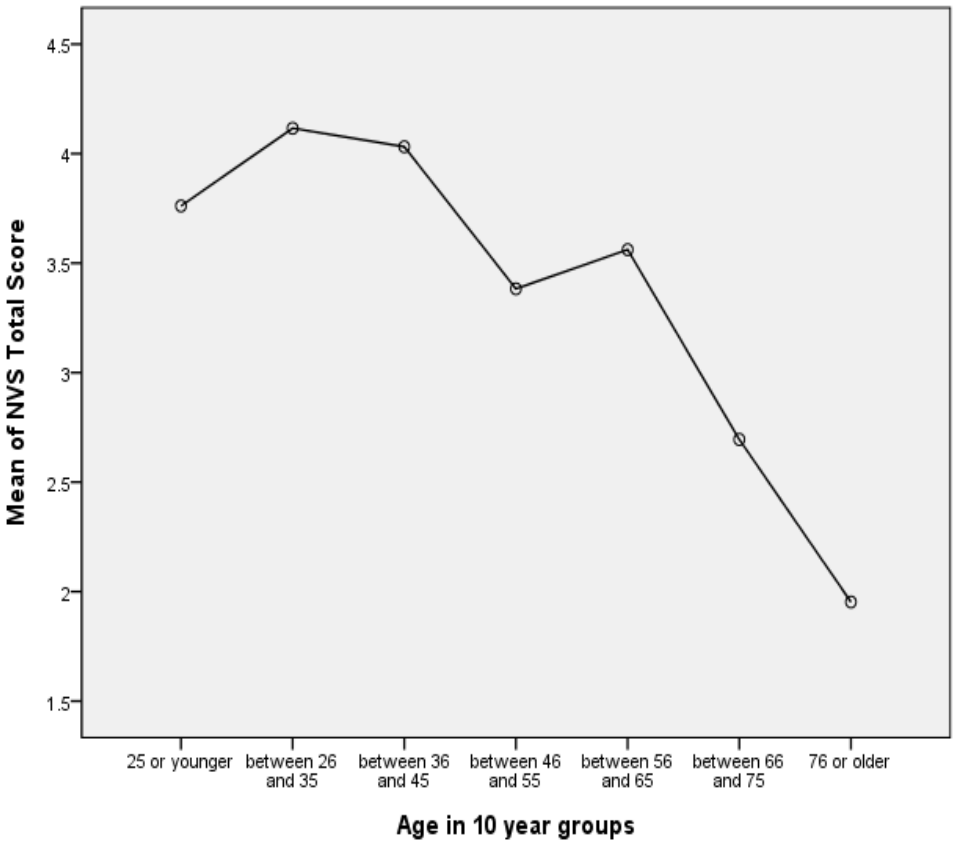
In terms of health literacy, 10-year age groups (Figure 19), the means were as follows; < 25 years of age (mean = 35.095), 26-35 years (mean = 34.65), 36-45 years (mean = 35.58), 46-55 (mean = 35.45), 56-65 (mean = 35.67), 66-75 (mean = 34.56) and >76 (mean 34.29). There was no significant difference found between the age groups (F= .534, p = .783).

Figure 19. The Relationship between Age and Health Literacy



In terms of the Newest Vital Sign, the means were as follows, < 25 years of age (mean = 3.76), 26-35 years (mean = 4.12), 36-45 years (mean = 4.03), 46-55 (mean = 3.38), 56-65 (mean = 3.56), 66-75 (mean = 2.69) and >76 (mean 1.95). There were significant differences between the groups ($F= 11.707$, $p \leq .01$). This is shown in Figure 20.

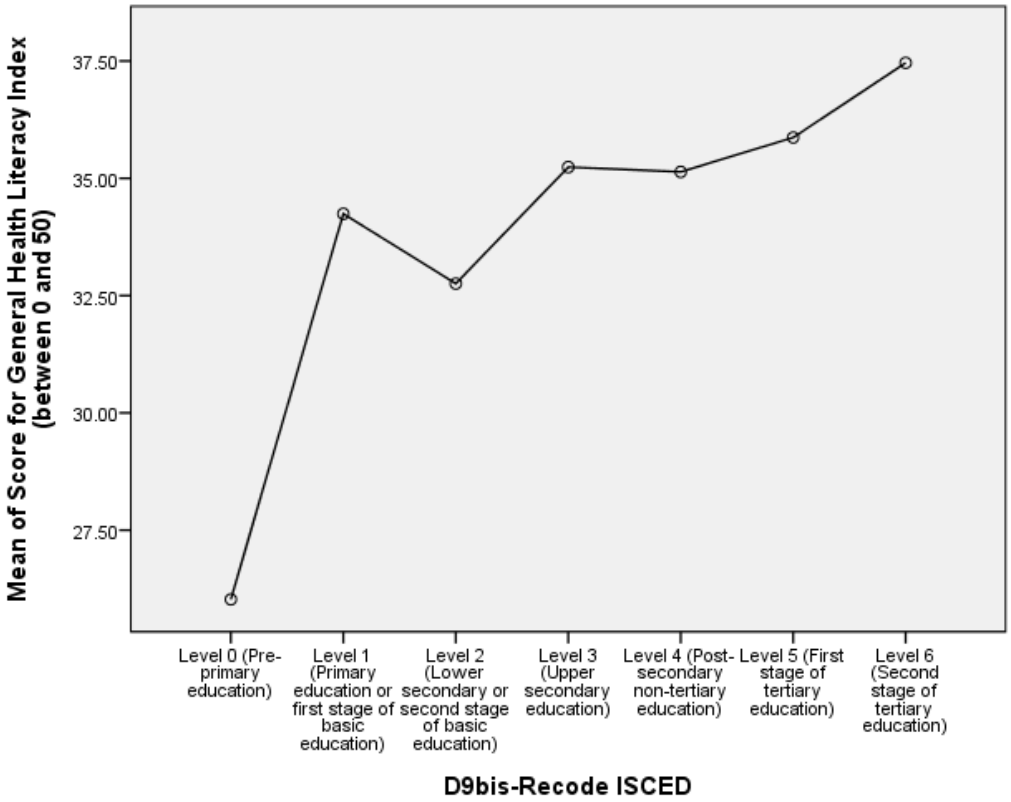
Figure 20. The Relationship between Age and Newest Vital Score



Education and Health Literacy

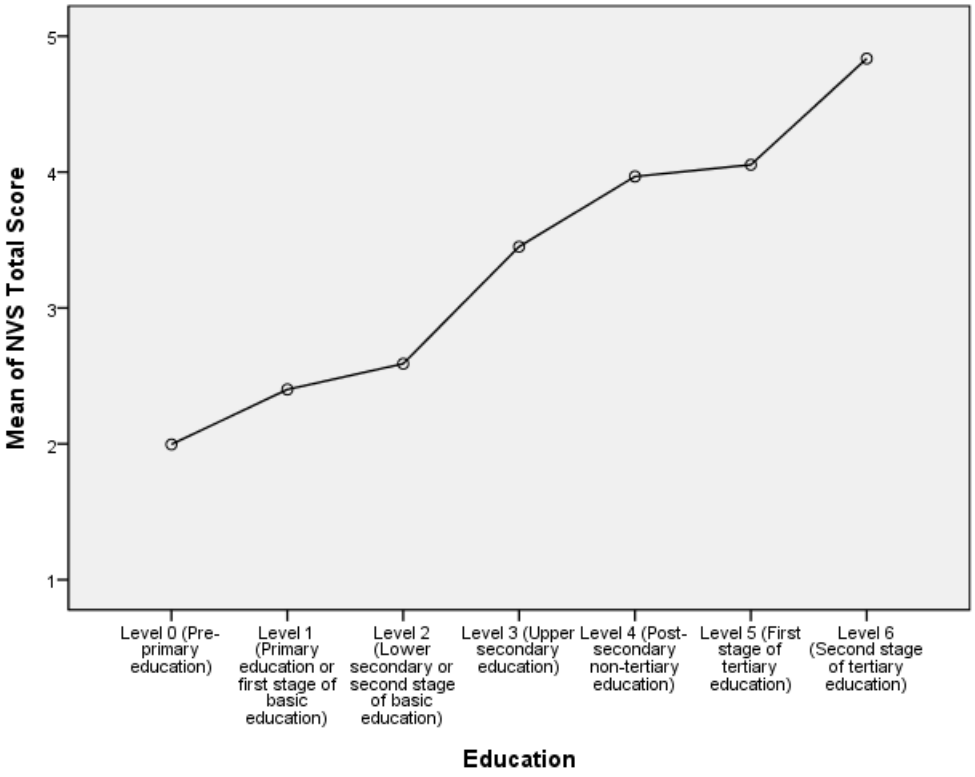
Regarding education and health literacy (Figure 15), those at Level 0 had the lowest level of health literacy (Mean = 26.02), followed by Level 2 (Mean = 32.76), Level 1 (34.24), Level 4 (35.14), Level 3 (Mean = 35.24), Level 5 (Mean = 35.87), and finally Level 6 (Mean = 37.46). There are significant differences between the groups (F= 7.23, $p \leq .01$).

Figure 21. The Relationship between Education and Health Literacy



Regarding education and the Newest Vital Sign (Figure 16), those at Level 0 had the lowest level of functional health literacy (Mean = 2.00), followed by Level 1 (Mean = 2.40), Level 2 (2.59), Level 3 (3.45), Level 4 (Mean = 3.97), Level 5 (Mean 4.05) and finally Level 6 (Mean = 4.84). There are significant differences between the groups (F= 26.25, $p \leq .01$).

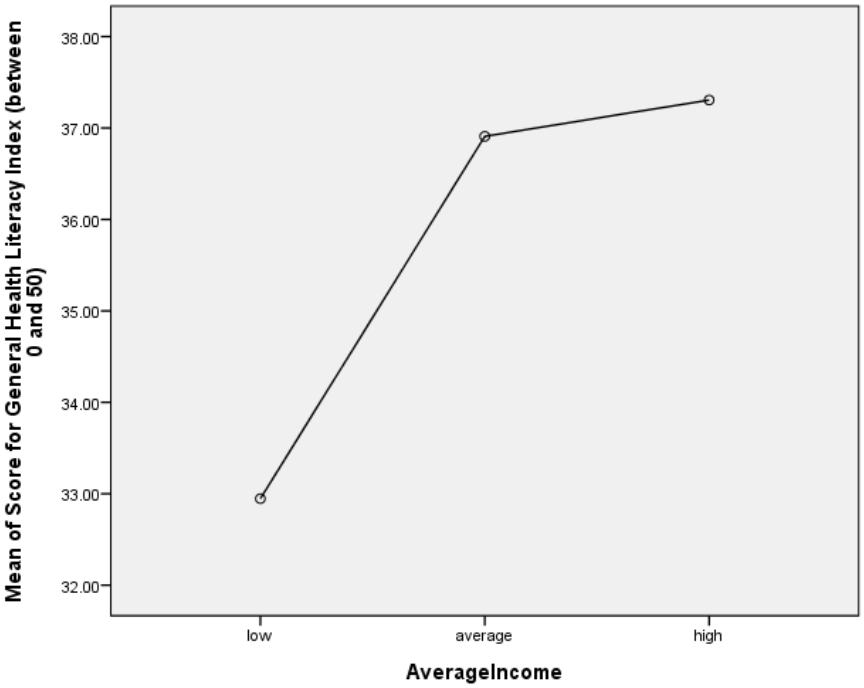
Figure 22. The Relationship between Education and Newest Vital Sign Score



Income and Health Literacy

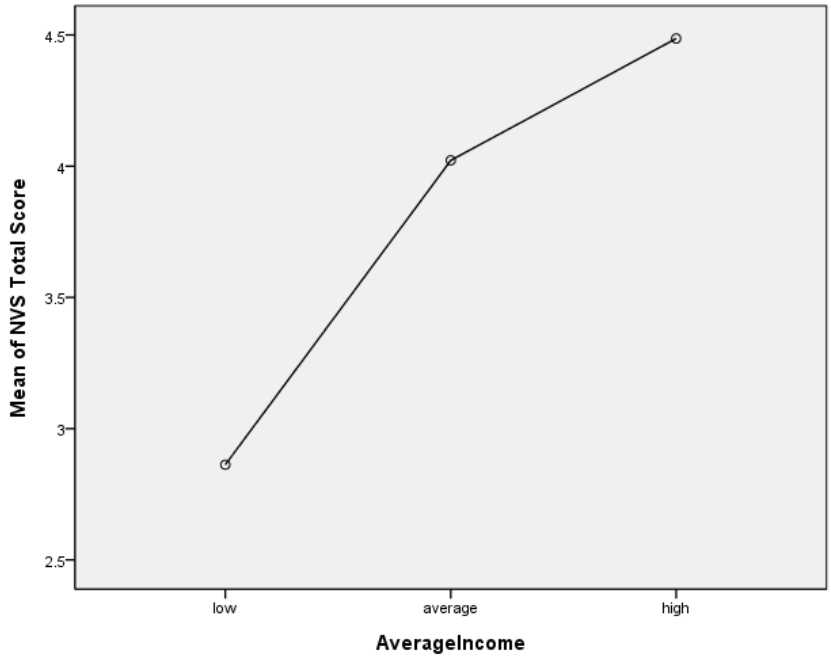
Regarding income level those with least income (€1- €1,850) had the lowest health literacy scores (Mean = 32.94), followed by those with average incomes (€1850- €4,400) with an average score of 36.90, and finally those on high incomes (€4,400+) had an average score of 37.30 (Figure 23). The average score for the population sample was 34.94, and analysis of variance suggests a significant difference between income levels and health literacy ($F= 21.429$, $p \leq .01$).

Figure 23. The Relationship between Income and Health Literacy



Regarding income and the Newest Vital Sign (Figure 22), those on the lowest income had the lowest score (2.86) followed by those on average incomes (4.02) and finally those on high incomes (4.49). The significant differences among income groups (F= 33.00, $p \leq .01$) suggests that income is a good determinant of literacy.

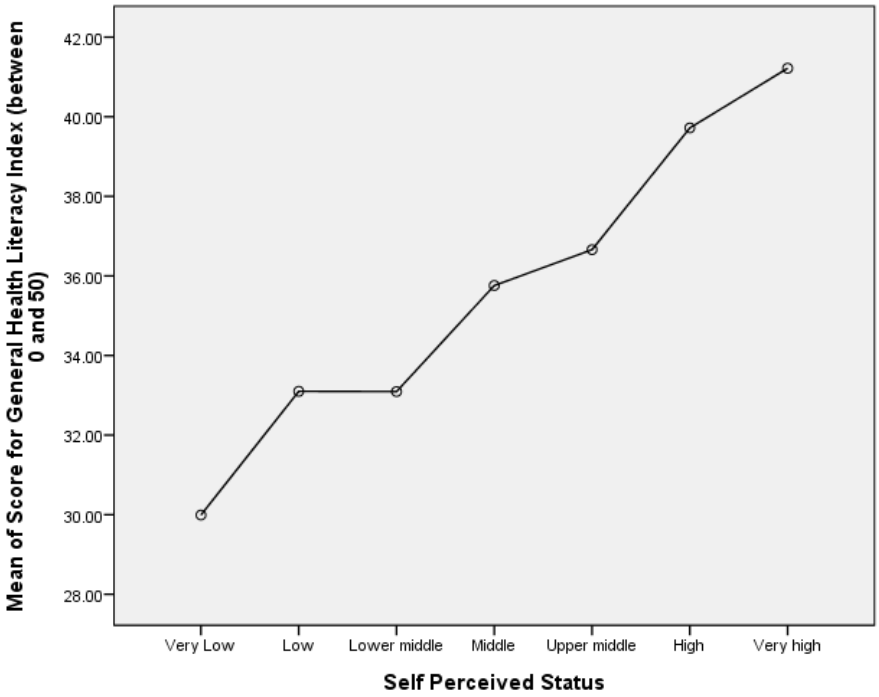
Figure 24. The Relationship between Income and Newest Vital Sign Score



Self- Perceived Social Class and Health Literacy

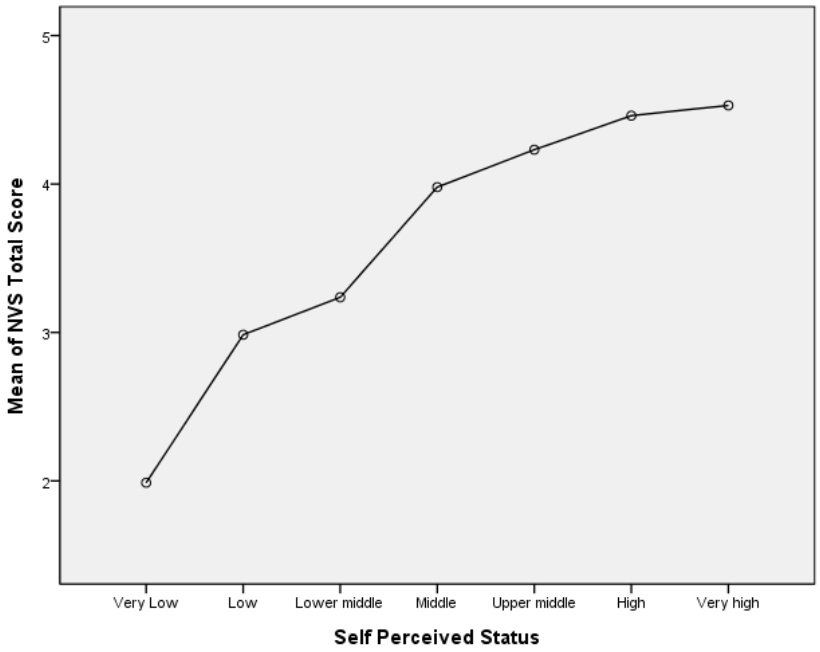
Regarding self-perceived social class, there was an obvious progression in health literacy score from lower class to higher (Figure 25), the means of each class were as follows, very low = 29.99, low = 33.09, lower middle = 33.09, middle = 35.76, upper middle = 36.66, high = 39.72, very high = 41.21. There was a significant difference among the class categories (F= 20.436, $p \leq .01$).

Figure 25. The Relationship between Social Class and Health Literacy



Regarding social class and the Newest Vital Sign (Figure 26), there was an obvious progression in NVS score from lower class to higher, the means of each class were as follows, very low = 1.99, low = 2.98, lower middle = 3.24, middle = 3.98, upper middle = 4.23, high = 4.46, very high = 4.53. There was a significant difference among the class categories (F= 17.06, $p \leq .01$).

Figure 26. The Relationship between Social Class and Newest Vital Sign Score



Predicting Health Literacy

Table 8 summarises the determinants of health literacy. In this instance the determinants explain 7.2% variance in health literacy. However only income and social class reach the appropriate level of significance at the level p ≤.05 and in both instances the variables positively predict health literacy.

Table 8 Determinants of Health Literacy

Variables	
Gender	β = .028
Age	β = .024
Education	β = .052
Income	β = .138**
Social class	β = .149**
Parent	β = -.005
R^2	.072
ANOVA	F = 7.163**

*p ≤ .05; ** p ≤ .01

SECTION 6 THE RELATIONSHIP BETWEEN HEALTH LITERACY AND HEALTH OUTCOMES

This section presents an analysis of demographics and health literacy on health outcomes.

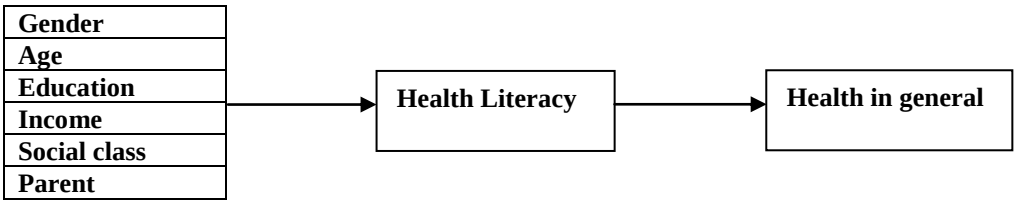


Figure 19 Health literacy on health in general

Figure 19 presents the model of health literacy on one's health in general (Table 9, Model 1). Of the demographics, gender positively predicts health in general (with females expressing higher instances of self-rated health in general than males), as age increases one's health in general increases, as education increases one's health in general decreases, as social class increases one's health in general decreases. Finally being a parent increases self-rated health in general. Health literacy also has a significant negative impact on one's health in general, indicating that higher instances of health literacy relate to lower instances of health in general.

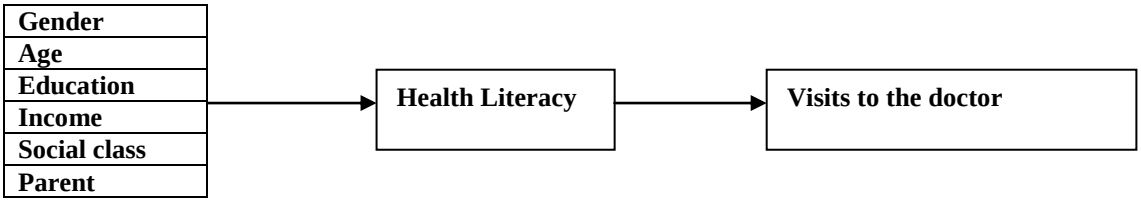


Figure 20 Health literacy on visits to the doctor

Figure 20 presents the model of health literacy and the amount of times one visits the doctor (Table 9, Model 2). Of the demographics gender positively predicts doctor visits, as age increases visits to the doctor increase, as social class increases visits to the doctor decrease. Being a parent increases ones visits to the doctor. Health literacy does not significantly predict visits to the doctor.

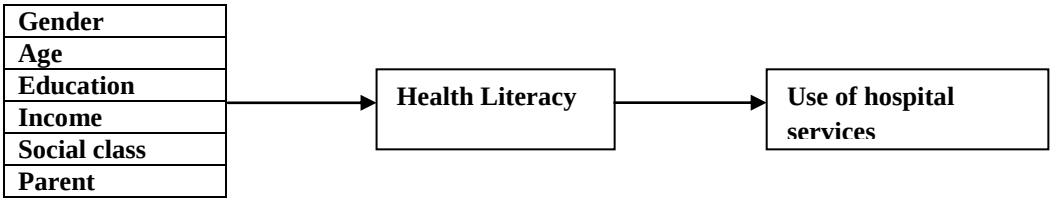


Figure 21 Health literacy on use of hospital services

Figure 21 presents the model of health literacy and the amount of times one uses hospital services (Table 9, Model 3). Of the demographics gender positively predicts the use of hospital services (females using hospital services more often), as age increases the instances of the use of hospital services increases. Health literacy does not significantly predict use of hospital services.

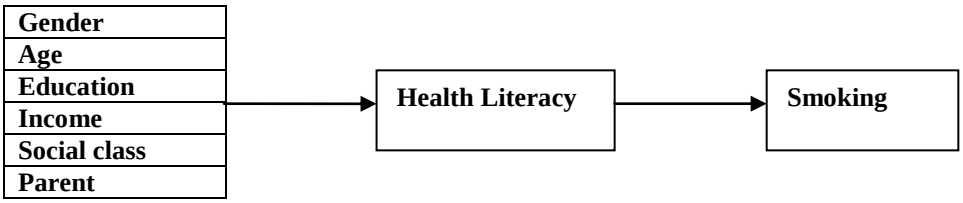


Figure 22 Health literacy on smoking

Figure 22 presents the regression model of health literacy on smoking (Table 9, Model 4). Of the demographics as one's age increases smoking decreases, as education increases smoking decreases. Health literacy also has a significant negative impact on smoking, indicating that higher instances of health literacy relate to lower instances of smoking.

Figure 23 Health Literacy on exercise

Figure 23 presents the regression model of health literacy on exercise (Table 9, Model 5). Of the demographics, an increase in social class predicts lower instances of exercise. Health

literacy also has a significant negative impact on exercise, indicating that higher instances of health literacy relate to lower instances of exercise.

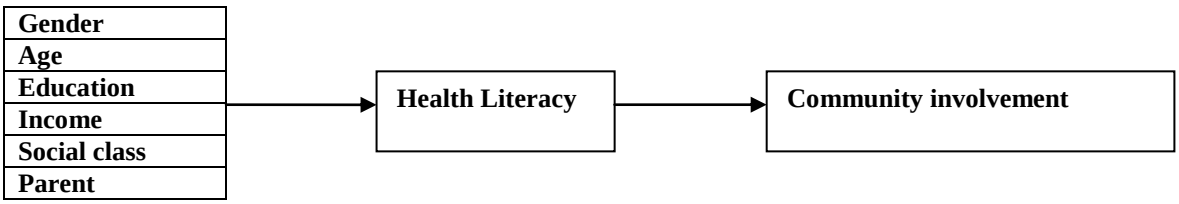


Figure 24 Health Literacy on community involvement

Figure 24 presents the regression model of health literacy on community involvement (Table 9, Model 6). Of the demographics, gender positively predicts community involvement (with females more likely to be actively involved in their community), as social class increases community involvement decreases, also being a parent positively increases community involvement. Health literacy does not significantly predict community involvement.

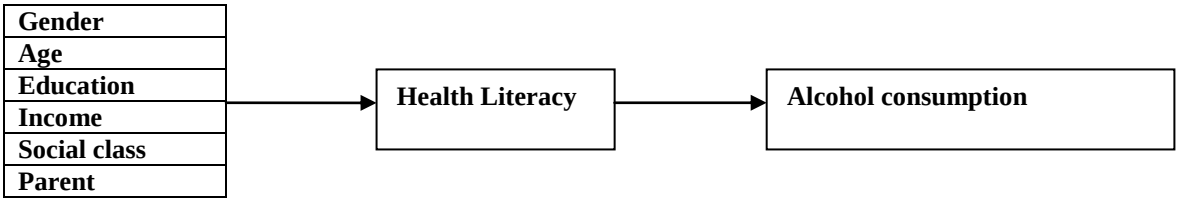


Figure 25 Health literacy on alcohol consumption

Figure 25 presents the regression model of health literacy on alcohol consumption (Table 9, Model 7). Of the demographics, gender negatively predicts alcohol consumption (with males consuming more than females, as age increases alcohol consumption decreases, as education increases alcohol consumption decreases and finally as social class increases alcohol consumption decreases. Health literacy does not significantly predict alcohol consumption.

Table 9 Beta Values for Health Literacy Outcome Regression Models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	HL → Health in general	HL → Visits to the doctor	HL → Use of hospital services	HL → Smoking	HL → Exercise	HL→ Community involvement	HL→ drinking
Gender	β = .083*	β = .160**	β = .170**	β = -.051	β = .021	β =.090*	β =-.240**
Age	β = .216**	β = .230**	β = .087*	β =-.173**	β =.070	β =.032	β =-.219**
Education	β = -.187**	β = -.030	β = -.001	β =-.209**	β =-.036	β =-.025	β =-.158**
Income	β =-.062	β = -.072	β = -.029	β =-.016	β =-.090	β =-.012	β =-.006
Social Class	β = -.101*	β = -.130**	β = -.045	β =-.083	β =-.095*	β =-.169**	β =-.115*
Parent	β = .099*	β = .083*	β =-.047	β = -.023	β =-.004	β =.104*	β =.073
R^2	.186	.118	.046	.085	.040	.046	.151
Change in R^2	.186	.118	.046	.085	.040	.046	.151
ANOVA	F = 21.247**	F = 12.438**	F = 4.428**	F = 8.563**	F = 3.834**	F = 4.464**	F = 12.085**
Health Literacy	β = -.175**	β = -.025	β = -.066	β = -.101*	β = -.150**	β = -.075	β =.042
R^2	.215	.119	.050	.094	.061	.051	.153
Change in R^2	.028	.001	.004	.009	.021	.005	.002
ANOVA	F = 21.691**	F = 10.704**	F = 4.144**	F = 8.221**	F = 5.121**	F = 4.273**	F = 10.467**

*p ≤ .05, **p≤ .01

Section 7 European Results

Source: **The State of Play of Health Literacy – Main findings of the first Health Literacy Survey in Europe. Authors Jürgen Pelikan, Florian Röthlin, Kristin Ganahl, LBIHPR, Austria. On behalf of the HLS-EU Consortium. The European Health Literacy Conference, Brussels. 22-23 November 2011.**

Overview

Presented below is a summary of results from the eight countries that participated in the HLS.EU. Of the eight participating countries, Ireland had the second highest level of health literacy after the Netherlands (Figure 26). Ireland ranked joint fourth on mean score in functional health literacy (Figure 27). All countries displayed positive correlations between health literacy and education (Figure 29), health literacy and self-assessed social status (Figure 31), health literacy and Newest Vital Sign score (Figure 30). All countries displayed negative correlations between health literacy and financial deprivation (Figure 32) and health literacy and self-assessed health (Figure 33). With regard to age, all countries except the Netherlands displayed a negative correlation between health literacy and age (Figure 28).

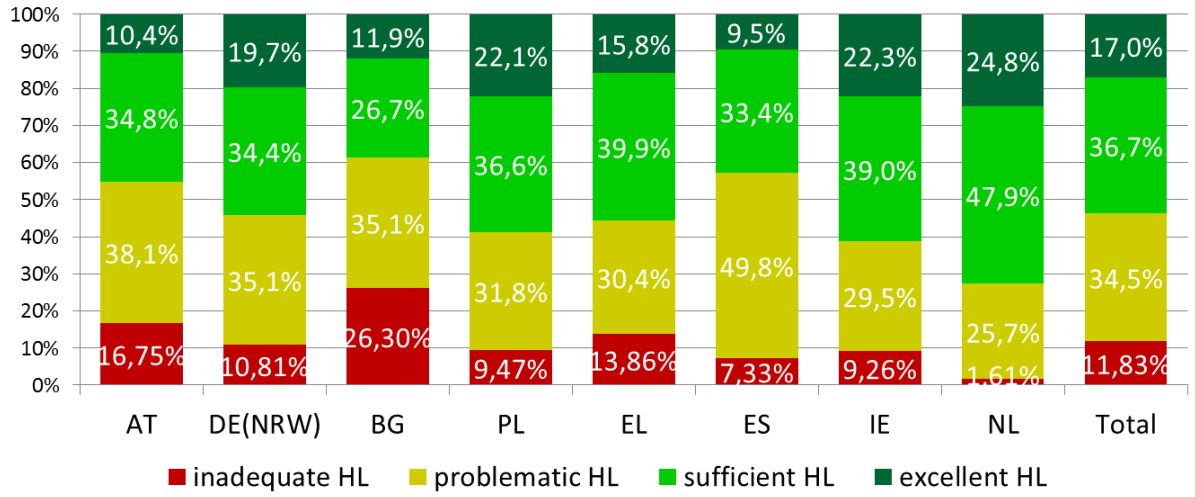


Figure 26 Percentages of different levels of the General Health Literacy Index, for 8 countries and the total sample.

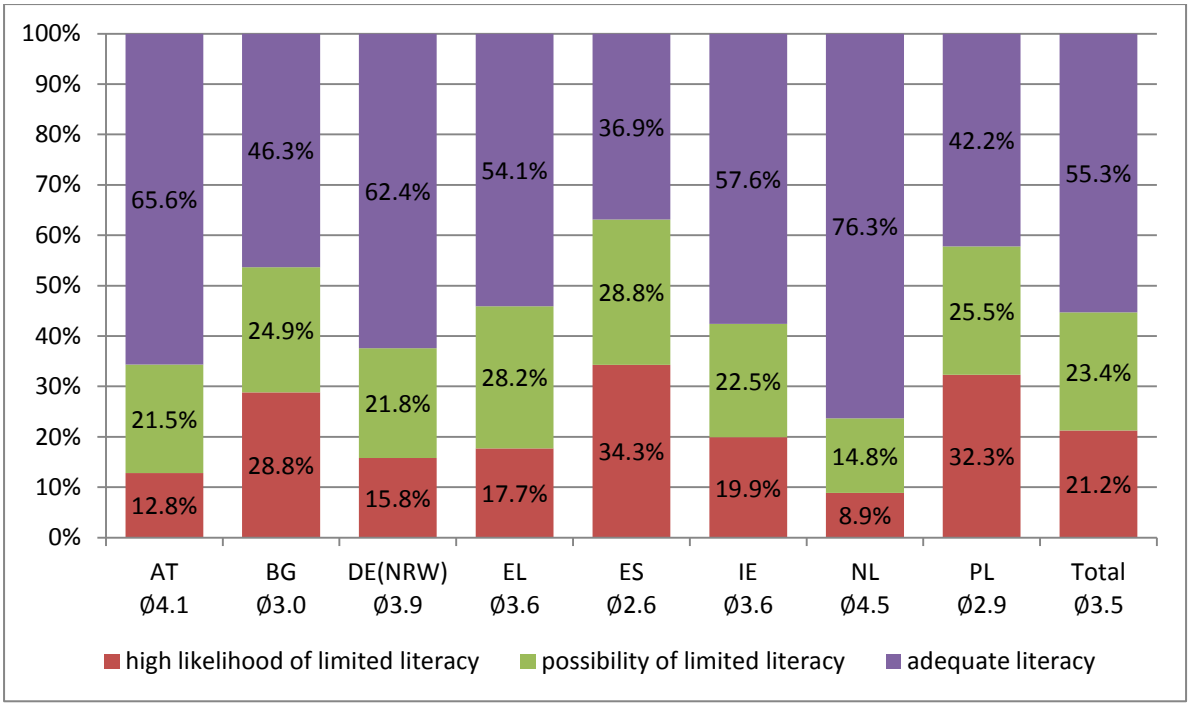


Figure 27 Distribution of Levels of and Means of NVS Scores

Correlation Analyses

Key

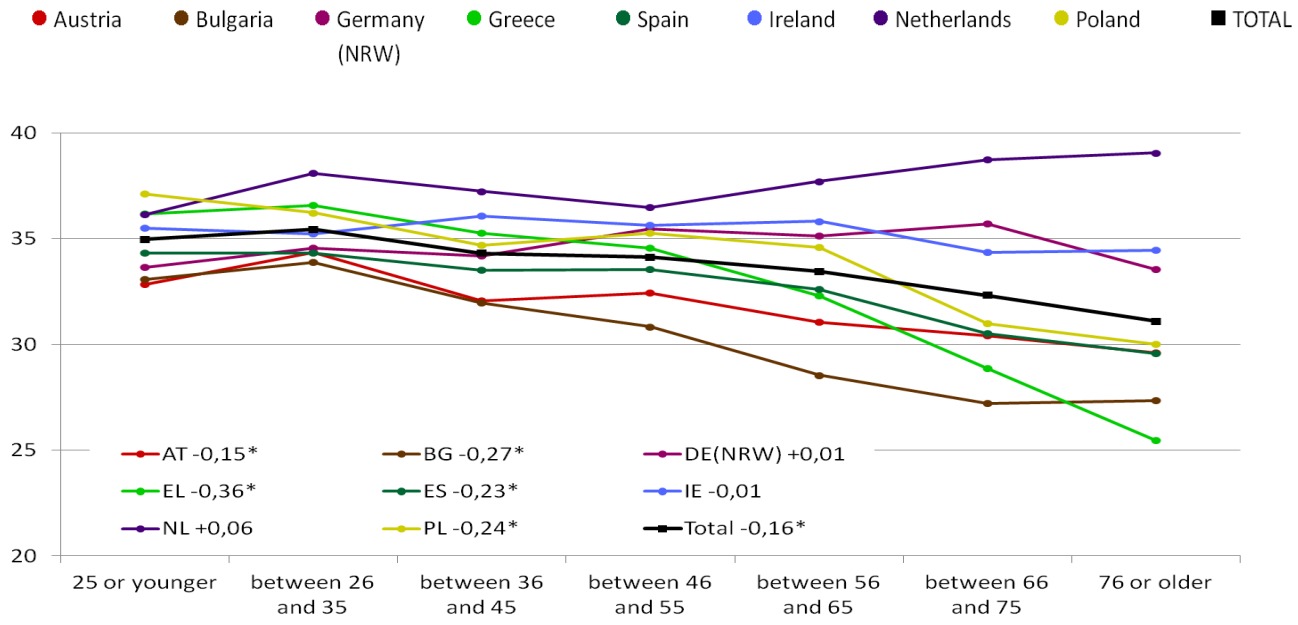


Figure 28 General Health Literacy Index, Mean Scores by Age and Country

**Pearson's correlation coefficient, *p<0.05*

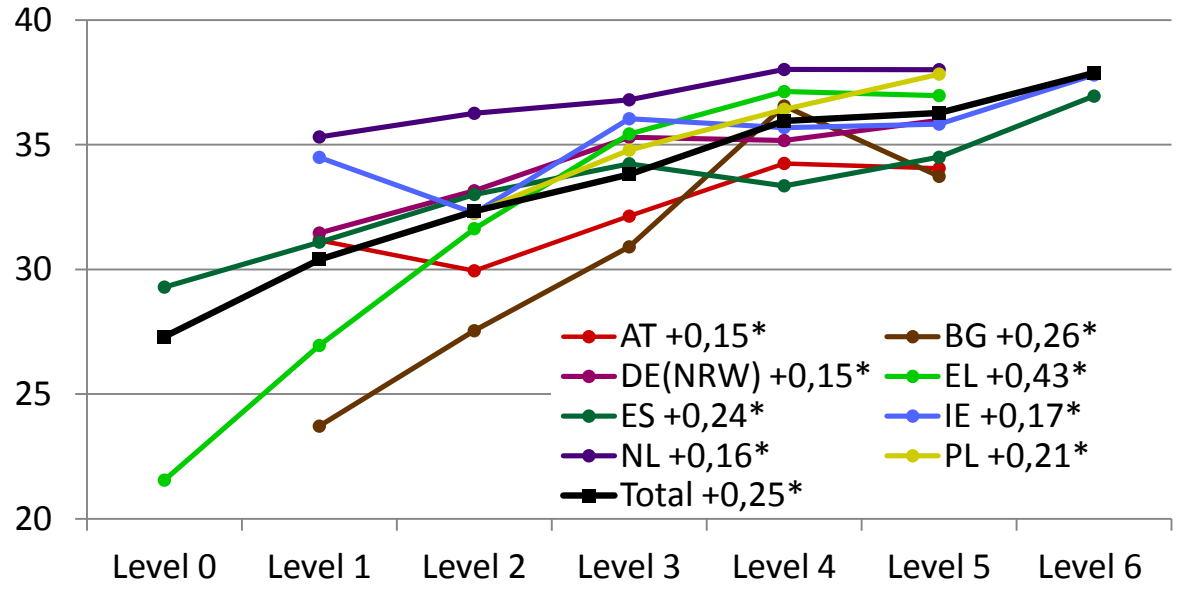


Figure 29 General Health Literacy Index, Mean Scores by Education (ISCED) and Country

**Pearson's correlation coefficient, *p<0.05*

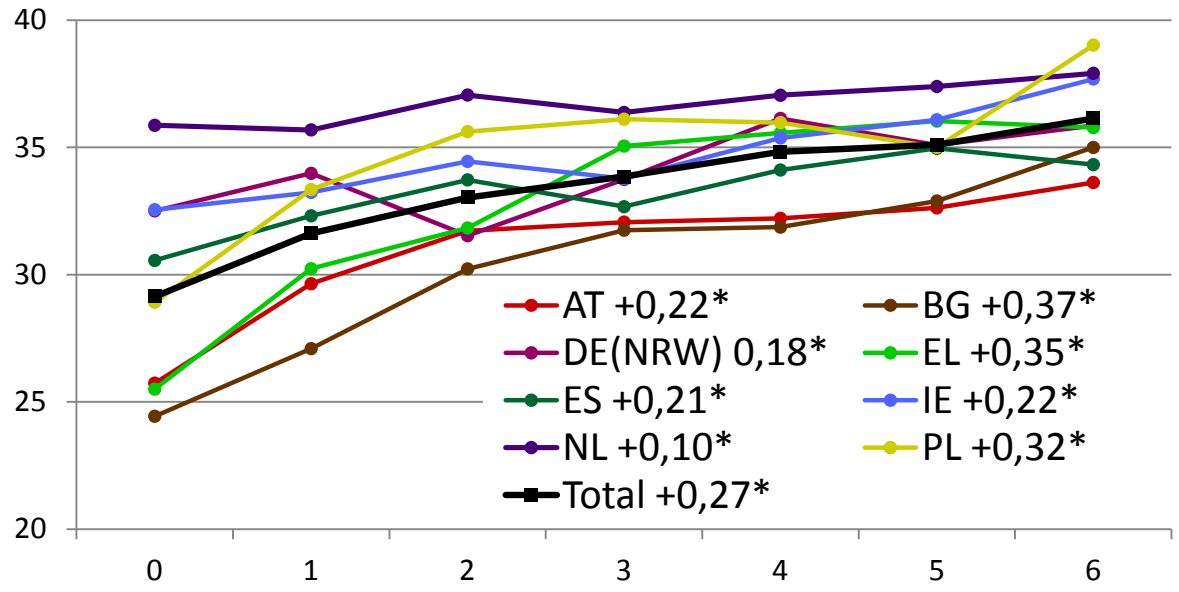


Figure 30 General Health Literacy Index, Mean Scores by NVS scores and Country

**Pearson's correlation coefficient, *p<0.05*

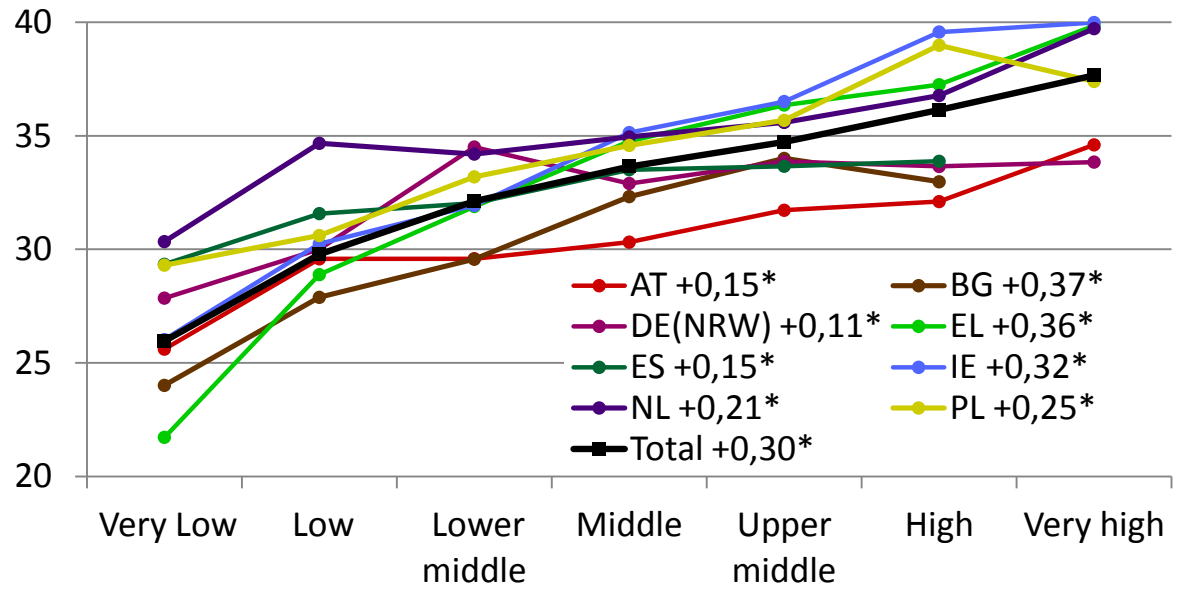


Figure 31 General Health Literacy Index, Mean Scores by Self-Rated Social Status and Country

**Pearson's correlation coefficient,*p<0.05*

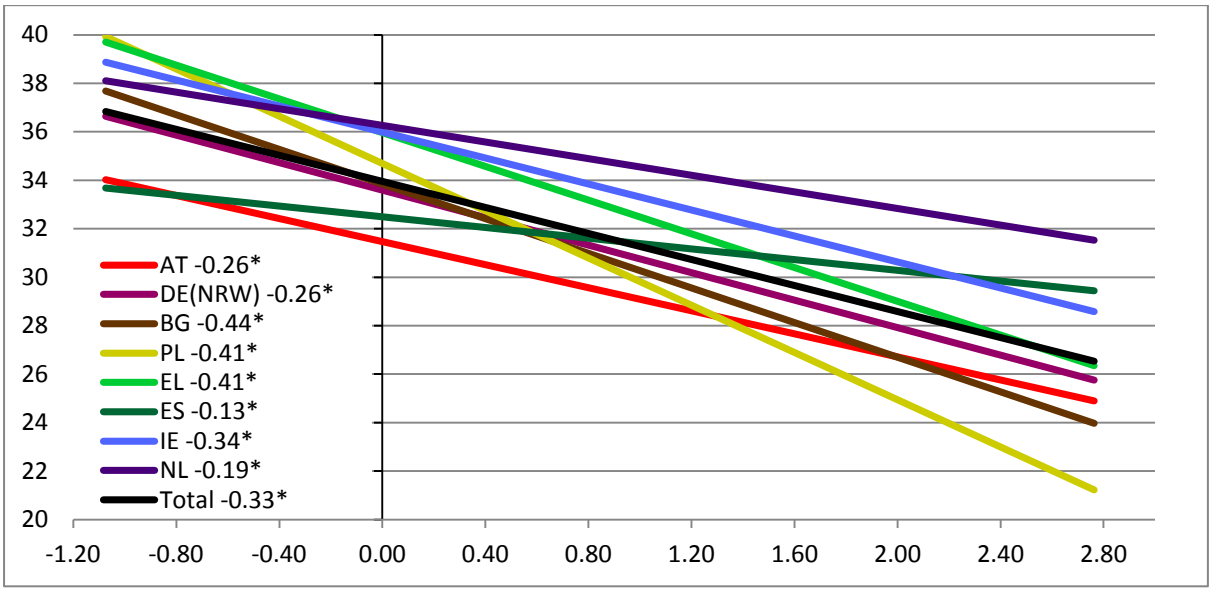


Figure 32 General Health Literacy Index, Mean Scores by Financial Deprivation and Country

**Pearson's correlation coefficient,*p<0.05*

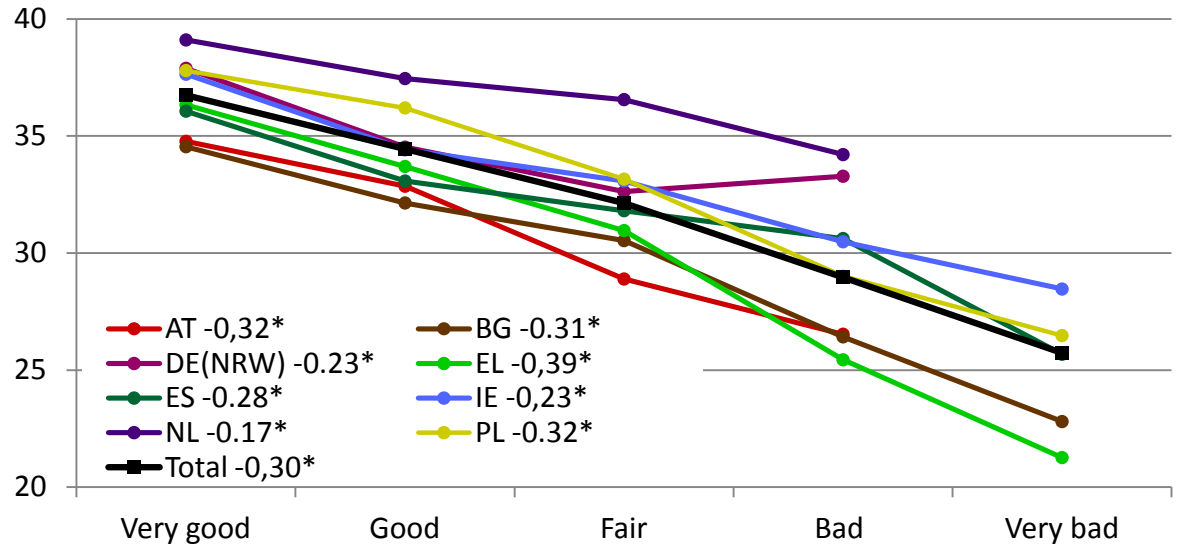


Figure 33 General Health Literacy Index, Mean Scores by Self-Assessed Health and Country

**Pearson's correlation coefficient, *p<0.05*

SECTION 8: CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

As the report has indicated, various categories of people in Ireland have difficulty in accessing, understanding, appraising and applying information on health related matters. Overall 21% of the population sample scored the lowest possible on the Newest Vital Sign test of functional literacy. In terms of health literacy scores ranged from a minimum of 11.59 to a maximum of 50 on the 47 health literacy variables. The mean score across the population was 35.15 with a (SE 7.79). Other notable findings include evidence that income was not a direct linear relationship between health literacy and health outcomes. Similarly with regard to education, the relationship was not linear, i.e. respondents with lowest level of education performed better than expected. Although health literacy is undoubtedly related to markers of social gradient such as income and education, these findings suggest that a direct linear relationship should not be assumed, those with higher incomes and more education are still at risk of low health literacy.

Recommendations

Recommendations from the study are presented at both the national level and the European level.

Recommendations for Ireland

- Health care professionals in Ireland should adjust their expectations in assuming the levels of health literacy and literacy of their patients. Health literacy should be included in the education and evaluation of health care practitioners.
- Health education and its assessment needs to be integrated into the school curricula from the earliest years to school leaving age.
- Efforts must be made to identify individuals with poor functional literacy at the point of entry to the health system and steps should be taken to counter this risk factor immediately.
- Further research is needed into the barriers to accessing information on mental health.
- Health literacy should be considered in the development of all health promotion initiatives at all levels/settings, i.e. primary care, hospital settings, residential care and national health promotion campaigns. Plain language should be the foundation of all

new materials but the cognitive ability required to understand and process the information presented should also be taken into account.

- Pharmaceutical companies should develop standards for the information that accompanies their products, to ensure it is as accessible and understandable as possible.
- In the media, standards of reporting should be considered to aid people in their interpretation of health information.

At a European level the HLS-EU consortium has proposed the following policy recommendations which are also relevant to Ireland, as a member of the EU:

- Define concrete objectives and ways to empower citizens and increase health literacy, which should become a priority in the European Commission's new programme, and promote concrete cross-sector, multi-stakeholder collaboration.
- Feature health literacy prominently in the new European health strategy, following the White Paper (European Commission, 2007).
- Fund projects to promote health literacy in the context of the new seven year health programme, and ensure that the impact on health literacy will be one of the selection criteria for funding of any project put forward in this programme.
- Develop a comprehensive health information and literacy strategy that goes beyond the current Directive on Information to Patients.
- Conduct further research to inform policies and help measure the impact of health literacy across Europe.

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Appendix 1: The European Health Literacy Survey

	Items	Answer categories
Cure and care **Managing symptoms, complaints, illness and treatments**	Q1.1 On a scale from very easy to very difficult, how easy would you say it is to: find information about symptoms of illnesses that concern you?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.2-On a scale from very easy to very difficult, how easy would you say it is to: find information on treatments of illnesses that concern you?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.3-On a scale from very easy to very difficult, how easy would you say it is to: find out what to do in case of a medical emergency?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.4-On a scale from very easy to very difficult, how easy would you say it is to: find out where to get professional help when you are ill? (Instructions: such as doctor, pharmacist, psychologist)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.5-On a scale from very easy to very difficult, how easy would you say it is to: understand what your doctor says to you?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.6-On a scale from very easy to very difficult, how easy would you say it is to: understand the leaflets that come with your medicine?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.7-On a scale from very easy to very difficult, how easy would you say it is to: understand what to do in a medical emergency?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.8-On a scale from very easy to very difficult, how easy would you say it is to: understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.9-On a scale from very easy to very difficult, how easy would you say it is to: judge how information from your doctor applies to you?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.10-On a scale from very easy to very difficult, how easy would you say it is to: judge the advantages and disadvantages of different treatment options?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.11-On a scale from very easy to very difficult, how easy would you say it is	1, Very easy 2, Fairly easy

	to: judge when you may need to get a second opinion from another doctor?	3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.12-On a scale from very easy to very difficult, how easy would you say it is to: judge if the information about illness in the media is reliable? (Instructions: TV, Internet or other media)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.13-On a scale from very easy to very difficult, how easy would you say it is to: use information the doctor gives you to make decisions about your illness?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.14-On a scale from very easy to very difficult, how easy would you say it is to: follow the instructions on medication?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.15-On a scale from very easy to very difficult, how easy would you say it is to: call an ambulance in an emergency?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.16-On a scale from very easy to very difficult, how easy would you say it is to: follow instructions from your doctor or pharmacist?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Disease prevention **Managing risk factors for health**	Q1.17-On a scale from very easy to very difficult, how easy would you say it is to: find information about how to manage unhealthy behaviour such as smoking, low physical activity and drinking too much?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.18-On a scale from very easy to very difficult, how easy would you say it is to: find information on how to manage mental health problems like stress or depression?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.19-On a scale from very easy to very difficult, how easy would you say it is to: find information about vaccinations and health screenings that you should have? (Instructions: breast exam, blood sugar test, blood pressure)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.20-On a scale from very easy to very difficult, how easy would you say it is to: find information on how to prevent or manage conditions like being overweight, high blood pressure or high cholesterol?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.21-On a scale from very easy to very difficult, how easy would you say it is to: understand health warnings about behaviour such as smoking, low physical activity and drinking too much?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)

	Q1.22-On a scale from very easy to very difficult, how easy would you say it is to: understand why you need vaccinations? Q1.23-On a scale from very easy to very difficult, how easy would you say it is to: understand why you need health screenings?(Instructions: breast exam, blood sugar test, blood pressure)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous) 1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.24-On a scale from very easy to very difficult, how easy would you say it is to: judge how reliable health warnings are, such as smoking, low physical activity and drinking too much? Q1.25-On a scale from very easy to very difficult, how easy would you say it is to: judge when you need to go to a doctor for a check-up?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous) 1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.26-On a scale from very easy to very difficult, how easy would you say it is to: judge which vaccinations you may need? Q1.27-On a scale from very easy to very difficult, how easy would you say it is to: judge which health screenings you should have? (Instructions: breast exam, blood sugar test, blood pressure)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous) 1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.28-On a scale from very easy to very difficult, how easy would you say it is to: judge if the information on health risks in the media is reliable? (Instructions: TV, Internet or other media) Q1.29-On a scale from very easy to very difficult, how easy would you say it is to: decide if you should have a flu vaccination?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous) 1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.30-On a scale from very easy to very difficult, how easy would you say it is to: decide how you can protect yourself from illness based on advice from family and friends? Q1.31-On a scale from very easy to very difficult, how easy would you say it is to: decide how you can protect yourself from illness based on information in the media? (Instructions: Newspapers, leaflets, Internet or other media?)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous) 1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Health promotion **Managing resources for health and well-being**	Q1.32-On a scale from very easy to very difficult, how easy would you say it is to: find information on healthy activities such as exercise, healthy food and nutrition?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)

Q1.33-On a scale from very easy to very difficult, how easy would you say it is to: find out about activities that are good for your mental well-being? (Instructions: meditation, exercise, walking, pilates etc.)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.34-On a scale from very easy to very difficult, how easy would you say it is to: find information on how your neighbourhood could be more health-friendly? (Instructions: Reducing noise and pollution, creating green spaces, leisure facilities)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.35-On a scale from very easy to very difficult, how easy would you say it is to: find out about political changes that may affect health?(Instructions: legislation, new health screening programmes, changing of government, restructuring of health service	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.36-On a scale from very easy to very difficult, how easy would you say it is to: find out about efforts to promote your health at work?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.37-On a scale from very easy to very difficult, how easy would you say it is to: understand advice on health from family members or friends?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.38-On a scale from very easy to very difficult, how easy would you say it is to: understand information on food packaging?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.39-On a scale from very easy to very difficult, how easy would you say it is to: understand information in the media on how to get healthier? (Instructions: Internet, newspapers, magazines)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.40-On a scale from very easy to very difficult, how easy would you say it is to: understand information on how to keep your mind healthy?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.41-On a scale from very easy to very difficult, how easy would you say it is to: judge how where you live affects your health and well-being? (Instructions: Your community, your neighbourhood)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.42-On a scale from very easy to very difficult, how easy would you say it is to: judge how your housing conditions help you to stay healthy?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Q1.43-On a scale from very easy to very	1, Very easy

	difficult, how easy would you say it is to: judge which everyday behaviour is related to your health? (Instructions: Drinking and eating habits, exercise etc.)	2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.44-On a scale from very easy to very difficult, how easy would you say it is to: make decisions to improve your health?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.45-On a scale from very easy to very difficult, how easy would you say it is to: join a sports club or exercise class if you want to?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.46-On a scale from very easy to very difficult, how easy would you say it is to: influence your living conditions that affect your health and well being? (Instructions: Drinking and eating habits, exercise etc.)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	Q1.47-On a scale from very easy to very difficult, how easy would you say it is to: take part in activities that improve health and well-being in your community?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
Perceptions of personal health	Q2-How is your health in general?	1. Very good 2. Good 3. Fair 4. Bad 5. Very bad 6. DK/ Refusal (SPONTANEOUS)
	Q3-Do you have any long-term illness or health problem? By long-term I mean problems which have lasted, or you expect to last, for 6 months or more?	1. Yes more than one 2. Yes one 3. No 4. DK/ Refusal (SPONTANEOUS)
	Q4-For at least the last 6 months, how much have your health problems limited the activities you would usually do?	1. Severely limited 2. Limited but not severely or 3. Not limited at all? 4. DK/ Refusal (SPONTANEOUS
Health outcomes	Q5-What kind of health insurance do you have?	1. Public 2. Public and private 3. Private 4. None 5. DK/ Refusal (SPONTANEOUS)
	Q6.1-How many times have you had to contact the emergency service in the last 2 years? (Instruction: Ambulance, out of hours clinic, emergency department)	1. 0 times 2. 1-2 times 3. 3-5 times 4. 6 times or more 5. DK/ Refusal (SPONTANEOUS)
	Q6.2-How many times have you been to the doctor in the last 12 months?	1. 0 times 2. 1-2 times 3. 3-5 times 4. 6 times or more

	5. DK/ Refusal (SPONTANEOUS)
Q6.3-How many times have you used a hospital service in the last 12 months?	1. 0 times 2. 1-2 times 3. 3-5 times 4. 6 times or more 5. DK/ Refusal (SPONTANEOUS)
Q6.4-How many times have you used services from other health professionals, such as dentist, physiotherapist, psychologist, dietician, or optician in the last 12 months??	1. 0 times 2. 1-2 times 3. 3-5 times 4. 6 times or more 5. DK/ Refusal (SPONTANEOUS)
Q7-Regarding smoking cigarettes, cigars or a pipe, which of the following applies to you?	1. You smoke at the present time 2. You used to smoke but you have stopped 3. You have never smoked 4. DK (SPONTANEOUS)
Q8.1-Do you use the following tobacco products every day, occasionally or not at all?: Manufactured cigarettes	1. Yes everyday 2. Yes occasionally 3. Not at all
Q8.2-Do you use the following tobacco products every day, occasionally or not at all?: Hand-rolled cigarettes	1. Yes everyday 2. Yes occasionally 3. Not at all
Q9-During the past 12 months, did you drink any alcoholic beverage (beer, wine, spirits, cider or other local beverages)?	1. Yes 2. No 3. DK/ Refusal (SPONTANEOUS
Q10-How often in the past 12 months have you had 5 or more drinks on one occasion?	1. Several times a week 2. Once a week 3. Once a month 4.Less than once a month 5. Never 6. DK/ Refusal (SPONTANEOUS
Q11-Did you drink any alcoholic beverages (beer, wine, spirits, cider or other local beverages) in the last 30 days?	1. Yes 2. No 3. DK/ Refusal (SPONTANEOUS
Q12-In the last 30 days, how many times did you drink any alcoholic beverages?	1. Daily 2. 4-5 times a week 3. 2-3 times a week 4. Once a week 5. 2-3 times a month 6. Once 7. Don't remember\ Refusal (SPONTANEOUS)
Q13-On a day when you drink alcoholic beverages, how much do you usually drink?	1. Less than 1 drink 2. 1-2 drinks 3. 3-4 drinks 4. 5-6 drinks 5. 7-9 drinks 6. 10 or more 7. It depends (SPONTANEOUS) 8. Don't remember\ Refusal (SPONTANEOUS)
Q14-How often during the last month	1. Almost everyday

	did you exercise for 30 minutes or longer e.g. running, walking, cycling?	2. A few times a week 3. A few times this month 4. Not at all 5. I haven't been able to exercise 6 . DK/ Refusal (SPONTANEOUS
	Q15-Do you have a family member or a friend to take with you to a doctor's appointment?	1. Yes 2. No 3. DK (SPONTANEOUS)
	Q16-Are you actively involved in your community, for example do you volunteer or take part in activities?	1. Almost everyday 2. A few times a week 3. A few times a month 4. A few times a year 5. Not at all 6. . DK/ Refusal (SPONTANEOUS)
Newest Vital Sign	Q17-How many calories (kcal) will you eat if you eat the whole container??	1. 1,000 KCAL 2. 1,000 Calories 3. Any other answer 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	Q18-If you are advised to eat no more than 60 grams of carbohydrate for dessert, what is the maximum amount of ice cream you could have?	1. Two servings (or anything up to 2 servings) 2. Half the container (or any amount up to half the container) 3. 200 ml (or any amount up to 200 ml) 4. Any other answer 5. DK (SPONTANEOUS) 6. Refusal (SPONTANEOUS)
	Q19-Imagine that your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, some of which comes from one serving of ice cream. If you stop eating ice cream, how many grams of saturated fa	1. 33g 2. Any other answer 3. DK (Spontaneous) 4. Refusal (Spontaneous)
	Q20-If you usually eat 2500 calories each day, what percentage of your daily calorie (kcal) intake will you get if you eat one serving of ice cream?	1. 1/10 (one tenth) 2. 10% 3. Any other answer 5. DK (Spontaneous) 4. Refusal (Spontaneous)
	Q21-Is it safe for you to eat this ice cream?	1. Yes 2. No 3. DK(SPONTANEOUS) 4. Refusal (SPONTANEOUS)
	Q22-Why not?	1. Because it contains peanut oil/peanuts/nuts 2. Because you might have an allergic reaction 3. Other (SPONTANEOUS) 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	Q23-Why would you have an allergic reaction?	1. Because it contains peanut oil/peanuts/nuts 2. Other (SPONTANEOUS) 3. DK (SPONTANEOUS)

		4. Refusal (SPONTANEOUS)
Demographics	D1-Gender	1. Male 2. Female
	D2-How old are you?	(years)
	D3-How tall are you? (Approximately)	Feet and inches/ cm (If DK, code 998, If refusal, code 999)
	D4-How much do you weigh? (Approximately)	Stones / pounds or KG (If DK, code 998, If refusal, code 999)
	D5-Which of these proposals corresponds to your situation?	1. Your mother and your father were born in Ireland 2. One of your parents was born in Ireland and the other was born in another Member State of the European Union 3. Your mother and your father were born in another Member State of the European Union 4. One of your parents was born in Ireland and the other was born outside of the European Union 5. Your mother and your father were born outside the European Union 6. One of your parents was born in another Member State of the European Union and the other was born outside the European Union 7. DK\ Refusal (SPONTANEOUS)
	D6-What is your legal marital status?	1. Not married 2. Married 3. Separated / divorced 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	D7-What is your current household living situation?	1. Single / living alone 2. Living together/ shared household 3. In a serious relationship but not living together 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	D8_1-Do you have children? - Yes under 15	1. Yes under 15 years 2. Yes over 15 years 3. I have no children 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	D8_2-Do you have children? - Yes over 15	1. Yes under 15 years 2. Yes over 15 years 3. I have no children 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	D8_3-Do you have children? - I have no children	1. Yes under 15 years 2. Yes over 15 years 3. I have no children 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
	D8_4-Do you have children? - DK (SPONTANEOUS)	1. Yes under 15 years 2. Yes over 15 years

	3. I have no children 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
D8_5-Do you have children? - Refusal (SPONTANEOUS)	1. Yes under 15 years 2. Yes over 15 years 3. I have no children 4. DK (SPONTANEOUS) 5. Refusal (SPONTANEOUS)
D9-What is the highest level of education you have successfully completed (usually by obtaining a certificate or diploma)? D9bis-Recode ISCED	Show card 1. Level 0 (Pre-primary education) 2. Level 1 (Primay education or first stage of basic education) 3. Level 2 (Lower secondary or second stage of basic education) 4. Level 3 (Upper secondary education) 5. Level 4 (Post-secondary non-tertiary education) 6. Level 5 (First stage of tertiary education) 7. Level 6 (Second stage of tertiary education) 8. DK (SPONTANEOUS) Refusal (SPONTANEOUS)
D10-What is your current "main" status of employment?	1. Carries out a job or profession, including unpaid work for a family business or holding, including an apprenticeship or paid traineeship, etc. 2. Full-time 3. Part-time 4. Unemployed 5. Pupil, student, further training, unpaid work experience 6. In retirement or early retirement or has given up business 7. Permanently disabled 8. In military or community services 9. Full-time homemaker, parent or career 10. Inactive 11. Other (SPECIFY) 12. DK (SPONTANEOUS) (SPONTANEOUS) 13. Refusal (SPONTANEOUS)
D11-Have you ever been trained or employed in a healthcare profession e.g. as nurse, doctor, pharmacist?	1. Yes 2. No 3. DK(SPONTANEOUS) 4. Refusal (SPONTANEOUS)
D12-Are you able to pay for medication if needed to manage your own health? Is it…?	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)

	D13-Are you able to afford to see the doctor? Is it…? (Instructions: time, health insurance, cost, transport)	1, Very easy 2, Fairly easy 3, Fairly difficult 4, Very Difficult 5. Don't know (Spontaneous)
	D14-During the last twelve months, would you say you had difficulties to pay your bills at the end of the month…?	1. Most of the time 2. From time to time 3. Almost never\ never 4. Refusal (SPONTANEOUS)
	D15- On the following scale, step '1' corresponds to "the lowest level in the society"; step '10' corresponds to "the highest level in the society". Could you tell me on which step you would place yourself?	1. The lowest level in the society 2. – 3. – 4. – 5. – 6. – 7. – 8. – 9. – 10. The highest level in society 11. Refusal (SPONTANEOUS)
	D16-What is your household's net income per month?	1. Less than €800 2. €800 to under €1,350 3. €1,350 to under €1,850 4. €1,850 to under €2,400 5. €2,400 to under €2,950 6. €2,950 to under €3,600 7. €3,600 to under €4,400 8. €4,400 to under €5,250 9. €5,250 to under €6,450 10. €6,450 or more 11. Refusal (SPONTANEOUS)
	P1. DATE OF INTERVIEW	
Sampling Information	P2. TIME OF THE BEGINNING OF THE INTERVIEW	
	P3. NUMBER OF MINUTES THE INTERVIEW LASTED	
	P6. Size of locality	
	P7. Region	
	P8. Postal code	
	P9. Sample point number	
	P10. Interviewer number	