

Research Report:

Health News Media Monitoring

Quantitative Study of Belgian Health News in Newspapers, Magazines, on Television, Radio and Online

Ghent University

Collaboration between

Health, Media & Society

and

Center for Journalism Studies

2015-2016

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**HEALTH, MEDIA
& SOCIETY**



Health, Media & Society is an interdisciplinary research center at Ghent University created in response to the project “(De)constructing Health News”. Based on a collaboration between communication studies, sociolinguistics, sociology and medical science, Health, Media & Society looks at how the news media cover elderly-related health issues. Applying a holistic or start-to-end approach, we investigate the different interconnected stakeholders that are involved in the ‘chain’ of health news discourses: the pharmaceutical industry; policy-making bodies; health insurance companies; special-interest groups (health consumer organizations; patient support and advocacy organizations; academic research and expert groups; and associations of health professionals); the news media (traditional and online); and the general public. <https://hmsoc.ugent.be>

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Recommended citation:

Stroobant, Joyce, De Dobbelaer, Rebeca and Karin Raeymaeckers. (2016). *Research Report: Health News Media Monitoring: Quantitative Study of Belgian Health News in Newspapers, Magazines, on Television, Radio and Online.*

Funding:

This work was supported by the Special Research Fund under Grant BOFGOA 2014 000 604 “(De)constructing Health News”.

Acknowledgements:

Our thanks go out to Johan Vermeire who video recorded all relevant television broadcasts during the sampling period, to Lieze Vandenberghe for assisting in the coding, to the administrators of the private and public broadcasters (VTM and VRT) for granting us permission to their radio archives, to Sarah Van Leuven whose research into journalistic sourcing practices guided our own work.

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1 Introduction

Health news matters. It is an important source of health information for both patients and health professionals (Higgins et al. 2011). Exposure to health information in mass media has the potential to put health issues on the public agenda, to alter people's perception of what is healthy and what is not, to encourage them to seek further information, to create awareness and, ultimately, to alter people's behavior (Nielsen and Nordestgaard 2015; Lalazaryan and Hare-Farashbandi 2014). Nevertheless, health news is often subject to considerable criticism. Some argue that health news portrays very complicated issues in too simplistic terms (Levi 2001; Ransohoff and Ransohoff 2001; Schuchman 2002; Hinnant, Len-Riós and Oh 2012), or that stories are too sensational in nature, inducing panic and contributing to the social phenomenon of disease mongering (Moynihan, Heath and Henry 2002).

This study aims to **quantitatively explore health news in terms of themes, pathologies, treatment perspectives, age-relatedness of the news items and source use** by means of a quantitative content analysis (Neuendorf 2002). Contrary to most content analyses, the sample is not limited to one media type, but includes a broad panoply of different types of media outlets, e.g. newspapers, magazines, online news, radio and television broadcasts (cf. Appendix 1: Media titles included in the sample). In fact, magazines and television are preferred media sources for health information (Medlock 2015, Redmond 2010), hence the broad scope of this media monitoring. During a period of one month (February 2015), the researchers collected a sample of 981 health news items (cf. Appendix 2: Sample compilation news items (N=981)) from 35 different news outlets across different types of media which were then coded by three different coders based on a predefined codebook.

This study found that approximately **one in ten health news items does not contain a single source reference**. In other words, for these articles it remains unclear to the news consumer where the news initially came from, e.g. copyrighted work from other media, university press release, press agencies, etc. When sources are explicitly mentioned these are mostly either other media sources (ca. 25% of news items) or academic/scientific research (ca. 30%). Moreover, one in five references to academic work provides insufficient information about the institution, researchers or journal in which the study was published in order to identify the original study. However, despite **the prevalence of the academic/scientific expert voice, ordinary citizens as patients are also frequently invited to relate their experiences about certain diseases or health topics**. Note that this study differentiates between material sources (e.g. documents, reports, etc.) and individual actors (patients, spokespeople, etc.) as journalistic sources (cf. section 3.5 of this report).

The report is structured as follows. Section two provides an overview of methodological considerations. Section three, where the results of this study will be discussed, is subdivided in two parts. In the first part thematic and content-related issues of the news items will be discussed, while, the second part will focus exclusively on Flemish health journalists' manifest use of sources. Finally, in section four key findings of this quantitative study will be summarized and discussed briefly. Bibliographical references and appendices are included at the end of this report.

2 Methodology

The media titles under scrutiny in this content analysis are selected with three criteria in mind. First, we include different media types, i.e. not only traditional print media, but also online content, television and radio broadcasts. Secondly, this study not only represents large media groups (e.g. VRT, De Persgroep, Mediahuis, Roularta), but also some smaller publishers active in Flanders (e.g. Cascade, Think Media Magazine, Sanoma). Thirdly, circulation numbers published by the Centre for Information about the Media (CIM, 2014) were checked for readership size. This led to a selection of

35 individual media titles¹: 5 newspapers (2 popular dailies; 2 quality newspapers; 1 freesheet), 10 magazines (1 popular weekly; 3 women's magazines; 2 specialized science/health magazines; 1 men's magazine; 1 magazine for the elderly; 2 current affairs magazines), 14 television programs (3 from the commercial broadcasters De Vijver Media & Medialaan; 11 from the public broadcaster), 4 radio broadcasts (1 from the commercial broadcaster Medialaan; 3 from the public broadcaster VRT) and 2 health news websites² (1 commercial; 1 non-profit published by Belgian affiliation of Cochrane Foundation). For television and radio broadcasts a commercial equivalent was not always available, hence the overweight of the Flemish public broadcaster VRT for radio and television.

All previously mentioned titles were then scanned for health-related content. In other words, the selection includes **news items about new scientific studies** in the field of medicine with telling headlines such as “Cure for Alzheimer's is in our lungs – new groundbreaking research at Cambridge University³”, but also **policy issues** about the government's drug reimbursement policy or about replacement incomes for the chronically ill, the spread of epidemics (e.g. Influenza, Ebola, etc.) or the legalization of new medical techniques such as mitochondrial donation which is a new form of in vitro fertilization whereby genetic material of three rather than two adults is used. Besides **pure (hard) health news**, the researchers also included **soft news** that is health-related, ranging from **new diets and lifestyle issues**, e.g. “Detox your body: purify yourself and feel more energetic⁴”, to dealing with emotions when diagnosed with a terminal disease, e.g. “A sound mind in an ill body: dealing with emotions after cancer⁵”. Examples of items that were excluded from the selection are items covering for example traffic accidents, cases of carbon monoxide poisoning or news about sports injuries.

Given the explorative nature of our research and the wide variety of media types the researchers opted for a sampling period of one month: February 2015. Electronic archives of traditional print content such as GoPress (Belgian equivalent of LexisNexis) were not used. Instead the researchers leafed through the hard copies of newspapers & magazines, watched live emissions of television broadcasts (which were recorded to be able to watch them again afterwards), and visited the websites on a daily basis in search for health-related news items. Only for radio news the researchers relied on the archives of the broadcasters Medialaan and VRT. Both audio files and meta-data were made available. This yields **a total sample of 981 health-related news items: 471 newspaper items, 102 television items, 103 radio items, 202 magazine items and 103 online items**⁶. Additionally, it is important to stress that the selection of items was not limited to factual news reports, interviews and feature articles, but also includes op-ed pieces, letters to the editor and Q&A sections.

The items were coded based on a predefined codebook and registration form⁷ (Van Leuven 2013; De Dobbelaer & Raeymaeckers 2014). **Measurements and analyses were performed on three different levels.** First, **features of the news item as a whole were coded (N=981)**, e.g. title of the news item, title of media brand in which the item occurs, author, theme (cf. section 3.2.), pathology (cf. section 3.1), publication date, number of sources used, number of actors used, age-relatedness (cf. section 3.3), geographical proximity, type of item (factual news report/interview/visual story/feature article/ op-ed piece/ letter to the editor/Q&A) and focus on medical treatments or lifestyle changes (cf. section 3.4).

¹ For an extended list of all titles and media groups see appendix 1.

² Note, that these websites are net-native and exclusively focus on health news. They are not the online counterparts of the traditional print newspapers.

³ “Remedie Alzheimer zit in onze longen – Baanbrekend onderzoek aan universiteit Cambridge” – Het Laatste Nieuws p.9, 18/02/2015.

⁴ Doe de detox: zuiver je lichaam en bruis van de energie” – Vitaya Magazine p18, 01/02/2015.

⁵ “Een gezonde geest in een ziek lichaam: omgaan met emoties na kanker” – Vitaya Magazine p.28, 01/02/2015.

⁶ See appendix 2 for a more detailed overview.

⁷ For more info measuring variables and definitions of categories please contact the authors of this report.

Secondly, **coding was also done on the level of the sources (N=793)**. The 981 news items in the sample contained 793 sources. For each source the researchers coded the origin of the information of the source as well as the channel via which the journalist consulted the source if mentioned, e.g. scientific article published in the British Medical Journal via a university press release. The variable for the origin of the sources had fourteen predefined values: **press agency, traditional media brand, industry, policy-makers, sickness funds, consumer organizations, patient organizations, academic, associations of health professionals and hospitals, ordinary citizens, non-profit sector, government institutions & work-related sources (e.g. unions)**.

Thirdly, measurement and analyses were also conducted **on the level of the actor (N=1205)**. The sample of 981 news items contained 1205 actors. For each actor, the researchers have coded the actor's name, gender and profession or association/affiliation to which this actor belongs. For the latter variable 21 values were defined: **patients as ordinary citizens, patients as celebrities, ordinary citizens that are not patients nor friends/family of patients, celebrities that are not patients nor friends/family of patients, ordinary citizens that are friends/family of patients, celebrities that are friends/family of patients, specialist medical doctors, general practitioners, alternative medicine practitioner, paramedic, non-health related professional organization (e.g. unions), patient organizations, sickness funds, industry, academics, politicians, health-related professional organizations (e.g. Order of Physicians), government institution spokesperson, non-profit sector, consumer organizations and a final category of 'other'**. All analyses (crosstabs, significance tests, etc.) were conducted using IBM SPSS Software Version 22.0.0.1 (32-bit edition). The interrater reliability of the coding was measured by means of the Cohen's kappa coefficient which ranged between 0.65 and 1.

3 Results

PART I: Discussion of features relating to the contents of health news

3.1 Which health issues get most coverage

Before answering one of the most obvious questions arising from this health news media monitoring, viz. which health issues received most media attention during the sampling period, the authors want to emphasize that the results in this section have a **seasonal bias**. During the data sampling period (February 2015) influenza activity in Flanders peaked which resulted in a high number of items about influenza. No less than 54 (5,5%) of the 981 news items cover the flu. Moreover, the flu season 2014-2015 was exceptionally severe. Each year the influenza virus slightly mutates thus developing new variants of the virus. For the flu season of 2014-2015, doctors and scientists had not accurately anticipated how the virus would evolve, nor which variants of the virus would circulate. As a consequence, some people who had in fact received preventive flu-vaccination, got the flu anyway ([WIV, 2015](#)).

To keep the coding process feasible, pathologies were first coded generically, e.g. cancer or epidemic, in a subsequent step the more specific illness was identified, e.g. breast cancer or influenza. In what follows we will first give an overview of the most popular **generic categories**. Subsequently, we will list the most frequent pathologies pertaining **to the top-five of generic categories**. For matters of practicality, 164 items in which no clear pathology could be identified were temporarily deleted from the analysis. These items mainly dealt with health policy issues transcending the specificity of a particular pathology, e.g. lower fees for informal caregivers, availability of medical assistance for Belgians abroad, replacement incomes for people with prolonged illness. It is striking that a great deal

of the health news in this media monitoring is covered as if it was political news. This will be explored in greater depth in section 3.2 (infra) where themes in health news will be discussed.

Not surprisingly, apart from the high prevalence of messages about **epidemics** as explained above, **cancer** also receives a lot of attention. Findings from the U.S. health news study conducted by The Kaiser Family Foundation & The Pew Research Center’s Project for Excellence in journalism (2008) from January 2007 to June 2008 are similar. They found that cancer was the most covered disease (10,1%), obesity and diabetes comes in second place (5.5%), followed by heart diseases (3.9%). Despite the seasonal bias in our sample, the results still show similarities with studies where this bias is supposedly absent. Table 1 shows that cancer accounts for 11.4% of news items covering specific diseases. Mental illnesses (10.4%) and cardiovascular disease (4.4%) are also prominent in our sample. It is striking, however, that apart from ‘genuine’ pathologies (e.g. cancer, diabetes, cardiovascular disease, flu), news items about diet and nutrition also account for 11.3% of the health news items. Similarly, pregnancy and giving birth are also increasingly covered from a medical angle (6.2%), treating women as patients and deeming them responsible for the future well-being of the baby they are carrying (see also the section 3.4 on Treatment perspective: ‘Medical treatment’ vs. ‘lifestyle changes’).

Table 1. Most covered pathologies - generic coding (N=817)

Rank	Pathology/issue (generic) (N=817)	#	%
1	Epidemics (influenza, Ebola, aids, measles)	105	12.9
2	Cancer	93	11.4
3	Diet & nutrition	92	11.3
4	Mental illnesses	85	10.4
5	Pregnancy & fertility treatments	51	6.2
6	Cardiovascular disease	36	4.4
7	Down syndrome (a.k.a. trisomy 21)	25	3.1
8	Environmental health (particulate matter, Electromagnetic Radiation, pesticides)	22	2.7
9	Oral hygiene (cavities, plaque, whitening)	20	2.4
10	Euthanasia (& palliative care)	19	2.3
11	Brain damage & memory loss	18	2.2
12	Sexuality (erectile dysfunction, menstruation,...)	18	2.2
13	Obesity	17	2.1
14	Physical activity (Sport)	17	2.1
15	Use of medicine (adherence to therapy, polypharmacy)	15	1.8
16	Joints (arthritis, rheumatism)	14	1.7
17	Diabetes	13	1.6
18	Orphan diseases	13	1.6
19	Smoking	12	1.5
20	Sleeping problems	10	1.2
21	Hearing loss	8	1

22	Lung disease	8	1
23	Doctor-patient interaction	8	1
24	Bone fractures	7	0.9
25	Physical disability	7	0.9
26	Medical error	7	0.9
27	Plastic surgery	7	0.9
28	Psychosocial problems (autism, ADHD)	7	0.9
29	Comatoseness (being in a coma)	6	0.7
30	Pain	6	0.7
31	Genetics	5	0.6
32	Eye disorders & vision impairment	5	0.6
33	Allergies	4	0.5
34	Epilepsy	4	0.5
35	Organ donation	4	0.5
36	Ageing	4	0.5
37	Hepatitis C	3	0.4
38	Skin disorders	3	0.4
39	Menopause	3	0.4
40	Common cold	3	0.4
41	Body odour (perspiration, sweat)	3	0.4
42	Blood	2	0.2
43	Hygiene (in hospitals, at home, etc.)	2	0.2
44	Medical files (centralization of patient information)	2	0.2
45	Nails	2	0.2
46	Human Papillomavirus	1	0.1
47	Cirrhosis of the liver	1	0.1

Tables 2 to 5 (below) contain more detailed overviews of the contents of the generic categories. As explained above, Table 2 shows that due to the seasonal bias in the sample, **influenza** is the disease that gets most media attention. Also the recent **Ebola** outbreak in Western Africa (Guinea, Liberia and Sierra Leone) which has caused over 11 000 deaths ([WHO](#), March 2016), but which has now almost completely disappeared from the public agenda⁸, received considerable coverage. Coverage about **epidemics** does not seem to be consistent over time, rather coverage spikes when outbreaks occur and drops when the news gets ‘old’. Cancer on the other hand (Table 3), does not only have a fairly high incidence rate, viz. one in three men and one in four women will be diagnosed with cancer before the age of 75 (Belgian Cancer Registry), but also receives a lot of media attention. Receiving almost equal amounts of attention are issues concerning diets & nutrition. Table 4 indicates that alcohol – probably due to a campaign propagating the abstinence of **alcohol** during Lent – and also **sugar** are the biggest evil-doers in our daily nutritional pattern. While the prevalence of articles about alcohol may be incidental, other media sources⁹ indicate that sugar is increasingly being portrayed as the new evil (Lustig et al. 2012).

⁸ A quick search in the electronically available newspapers database GoPress teaches us that in February 2016 only 2 newspaper articles have the word “Ebola” in the headline.

⁹ The Huffington Post , 08/05/2014, [online](#): ‘Is Sugar The New Tobacco?’
De Standaard (DS Weekblad), 24/05/2014, p.32: ‘Is suiker de nieuwe sigaret?’

Table 2. Most covered epidemics

Epidemic (N=105)		#	%
1	Influenza	54	51.5
2	Ebola	23	21.9
3	Aids/HIV	11	10.5
4	Measles	11	10.5
5	Whooping cough	3	2.9
6	Cholera	1	1
7	Malaria	1	1
8	Plague	1	1

Table 3. Most covered cancers and cancer-related issues

Cancer (N=93)		#	%
1	Cancer (general)	19	20.4
2	Terminal cancer	8	8.6
3	Cancer and pregnancy	8	8.6
4	Breast cancer	7	7.5
5	Cancer treatments	5	5.4
6	Cervical cancer	4	4.3
7	Financial consequences of cancer	4	4.3
8	Leukemia	4	4.3
9	Cancer and pain	4	4.3
10	Alternative cancer treatments	3	3.2
11	Bladder cancer	3	3.2
12	Colon cancer	3	3.2
13	Lung cancer	3	3.2
14	Prostate cancer	3	3.2
15	Tongue cancer	3	3.2
16	Ovarian cancer	2	2.2
17	Skin cancer	2	2.2
18	Throat cancer	2	2.2
19	Lymph node cancer	2	2.2
20	Testicular cancer	2	2.2
21	Colorectal (large intestine) cancer	1	1.1
22	Cancer and stem cell donation	1	1.1

Table 4. Most covered foods and dietary patterns in relation to being healthy

Diet & nutrition (N=92)		#	%
1	Alcohol	32	34.8
2	Sugar	17	18.5
3	Diets	12	13
4	Detox	5	5.4
5	Fasting	5	5.4
6	Eating habits	4	4.3

7	Vitamins	4	4.3
8	Water	3	3.3
9	Anorexia	2	2.2
10	Undernourishment (malnutrition)	2	2.2
11	Vegetarianism	2	2.2
12	Food Safety	2	2.2
13	Fruit	1	1.1
14	Salt	1	1.1

Table 5. Most covered mental illnesses and disorders

Mental illnesses (N=85)		#	%
1	Depression	21	24,7
2	Burnout	16	18,8
3	Psychiatric internment	9	10,6
4	Suicide	8	9,4
5	Phobias	6	7,1
6	Stress	6	7,1
7	General issues (e.g. how astronauts maintain their mental health in space)	5	5,9
8	Personality disorders	4	4,7
9	Paedophilia	3	3,5
10	Psychosis	2	2,4
11	Gaming addiction	1	1,2
12	Hypersensitivity	1	1,2
13	Parental Alienation Syndrome (PAS)	1	1,2
14	Post-Traumatic Stress Disorder (PTSD)	1	1,2
15	Mourning	1	1,2

Flemish media are not only concerned about our physical well-being, news about **mental health issues** also take up a prominent place in our daily news diet (10.4%). Table 5 shows **that depression, burnout and stress** receive a lot of attention. These issues are mostly covered in relation to the busy lives that many people have and which are imposed on us by modern society with its time-is-money-attitude, not to mention traffic jams, full-time jobs and additional housekeeping chores.

Another hot potato in the realm of health news is **human reproduction**. No less than 50 news items (6.2%) deal with **fertility and pregnancy issues**. A possible contributing factor putting this issue on the media agenda was the fact that in February 2015 a law was voted in the House of Commons (United Kingdom) allowing hospitals to perform a new IVF technique called ‘mitochondrial donation’. This new technique requires genetic material of three parents (one male, two female) and is meant for women who are infertile due to mitochondrial malfunctions. Because of the controversial aura surrounding genetic manipulation, the “three parent baby” technique received some attention in Belgium as well.

Health news is a very diverse category of news that cuts across both hard and soft news genres. We did not conduct a longitudinal analysis that measures the in-or decrease of health news over time, but the fact that **in one month’s time, the researcher collected almost 1,000 health news items reflects how important health and medicine** has become for managing our daily lives.

Furthermore, as our results indicate, **lifestyle issues** receive considerable attention from various news media, especially – but not exclusively – in women’s magazines. **That normal aspects of life are increasingly being treated as medical problems is described in the medicalization thesis (Conrad, 2007)**. When a problem is medicalized, it is “defined in medical terms, described using medical language, understood through the adoption of a medical framework, or ‘treated’ with a medical intervention (Conrad 2007:5)”. Conrad (2007) stresses that it is important to view medicalization as a process. The past 50 years many scholars have described **the medicalization of ADHD, childbirth, baldness, erectile dysfunction and depression** (Conrad 2007, Christiaens 2008), but more recently scholars have shifted their attention to **food and nutrition** in relation to medicalization (Lawrence & Germov 2008; Zwier 2009). Producers of so called functional foods, increasingly ascribe healing and health-promoting characteristics to their foods (Lawrence & Germov 2008).

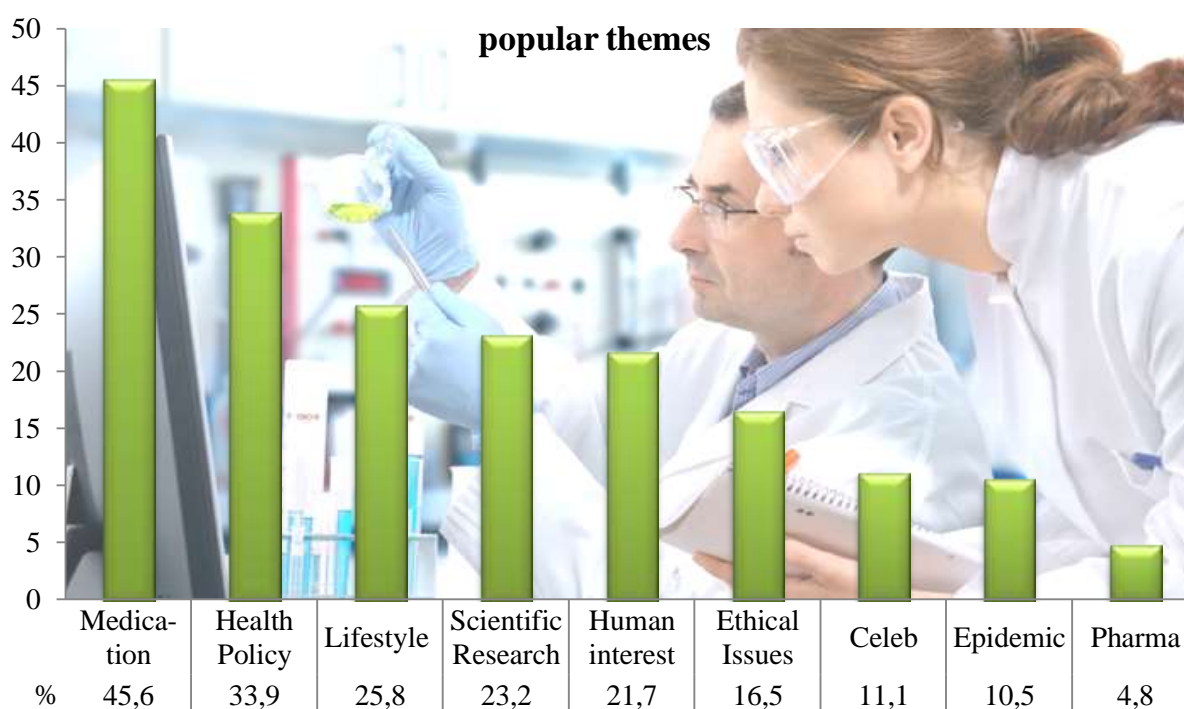
3.2 Thematic focus of the health news items

Besides pathologies and specific issues or topics, the coders also indicated for each article from which thematic angle the issue was approached. A distinction between nine thematic categories was made: (1) medication use, (2) pharmaceutical news, (3) ethical issues, (4) health policy, (5) epidemics, (6) human-interest, (7) scientific research, (8) celebrity news, (9) healthy lifestyle. Several themes per news item could be checked. The prominence of each theme was measured based on a three-point rating scale: strongly present, weakly present and absent, but afterwards recoded into a binary present/absent variable.

As shown in Figure 1, almost half of the health news items in the sample (**45.6%**) **make reference to the use of medication**, medical treatments, doctor’s visits or hospitalizations. The second most prominent angle is the policy-angle. **One third of the items (33.9%) invoke health-policy decisions**, stances of specific political parties or opinions of individual politicians. The lifestyle angle comes in third with **one in four (25.8%) news items making references to lifestyle patterns** in relation to health, e.g. getting enough physical exercise in our sedentary lifestyle to prevent obesity, diabetes and cardiovascular disease. In section 3.4 the relation between articles stressing medical interventions and those focusing on lifestyle interventions will be discussed more profoundly. For now, it suffices to say that the **use of medication receives almost twice the attention than lifestyle interventions**.

At the other end of the spectrum, issues relating to the **production of pharmaceuticals and the underlying (business) logic of these companies only occur in a handful of articles (4.8%)**. Several factors could explain the low counts of this theme. Firstly, since the focus of this study is on health news and not on business or economic news, *pure sang* pharmaceutical news is largely absent. Secondly, there are **strict rules for pharmaceutical companies’ advertising and communication** to the public via the media ([FAGG](#), 19/05/2016). Thirdly, journalists themselves value public relations messages supplied by industry less than for example public relation messages from universities (Len-Ríos & Hinnant 2009). In other words, despite pharma companies playing a central role in the context of national health care systems and in European regulatory bodies (Garattini, 2016), news items seldom adopt stances or viewpoints from the pharmaceutical sector. Especially, since pharma industry’s corporate reputation is perceived negatively by both public and journalists (Di Julio Firth & Brodie 2015; Kessel 2014; Goldacre 2012).

Figure 1. Popularity of themes in total sample (N=981) expressed in percentages



However, if different media types are compared, large fluctuations in terms of the division of these themes can be observed (see Table 6). All differences between media are significant at the 0.01 level, except for the theme medication use – which remains more or less constant across the different media types – and pharmaceutical news for which absolute counts were too low for Chi-square calculations. Thus, **while all media types strongly focus on medication use, lifestyle issues are very common in health items appearing in magazines.** In fact, there seems to be an equilibrium between focus on medication use and lifestyle, each approximately accounting for 50% of the items. A similar equilibrium can also be observed in the online items. In all other media types, there is a large gap between articles focusing on medication use and articles focusing on lifestyle. In approximately 5% of the articles both angles are adduced, section 3.4 will zoom in on this issue.

As Table 6 illustrates, each medium seems to have its preferences. The online health news websites very strongly emphasize hard scientific news, whereas television health news items often approach things more lightly with a human perspective angle. Patients' personal experiences and their showing emotion also generates attractive visuals that would keep the attention of the viewer. Contrary to print and online media where articles can be reread to the desire of the reader, television does not allow for complicated facts and figures to be shown, hence the difference in focus between online and television. Also striking is that health policy themes are mostly present in newspapers and on the radio.

Table 6. Occurrence of themes across different media types expressed in percentages

Theme	Medium N=471	Newspaper N=102	Television N=102	Magazine N=202	Radio N=103	Online N=103
Medication use	48.6%	49%	44.1%	42.7%	34%	
Politics	42.9%	33.3%	13.4%	50.5%	17.5%	
Lifestyle	16.6%	25.5%	50%	15.5%	31.1%	

Scientific research	19.3%	13.7%	20.8%	9.7%	68.9%
Human interest	17.4%	52%	33.7%	9.7%	0%
Ethical issues	21.7%	16.7%	7.9%	21.4%	4.9%
Celebrity	13%	13.7%	15.8%	1%	1%
Epidemic	10.4%	16.7%	3.5%	25.5%	3.9%
Pharma	7%	5.9%	2.5%	1.9%	1%

3.3 Age stratification

Broadly speaking, media outlets do not seem to target elderly people in particular in their coverage of health news (as illustrated in Table 7). On the contrary, **the majority of our sample is not explicitly age-related**, viz. 633 items (64.5%) are not specifically age-related. What was striking during the coding phase though, is that **health issues are often gender-related**. We did not measure gender-relatedness in this content analysis, but it might be **interesting for future research**. Furthermore, it seems that, when a degree of age-relatedness is explicitly mentioned, the **most popular demographic segments are teenagers, young children and baby's** (as illustrated in Table 9). Contrary to our expectations – which are based on recent demographic evolutions of the ageing of the population (Suzman *et al.* 2015) – elderly are underrepresented. This is probably, at least in part, due to the age of the journalists themselves. The average Flemish journalist is younger than 50, (Raeymaeckers *et al.* 2013) and since journalists tend to write from their own experience, elderly are rarely explicitly targeted. Moreover, journalists assume that their audience do not wish to read about old age and all little ailments that come with it. In fact, most media titles in the sample have a broad scope, targeting both younger and older demographic segments simultaneously.

Table 7. Frequency table news items related to specific demographic segment (N=981)

Age-relatedness	Frequency	Percent
Ages 50 and older	99	9,8
Ages 19 - 50	101	10,3
Ages 0 -18	151	15,4
Not specifically age-related	633	64,5

However, despite health news items overall preference for general audiences, each media type does seem to have its demographic preferences (as demonstrated in Table 8). All differences are statistically significant at a 0.01 level, the Phi and Cramer's V coefficients ($\phi=0.375$ and $V=0.265$; $p<0.01$) indicate a weak association between the degree of age-relatedness and the type of medium in which the article appears. Most often, explicitly elderly-related items are covered online and in magazines, whereas children and youngsters dominate the small screen. Additionally, the age preferences of the different media follow the same common thread. Table 9 shows that **children (e.g. babies, children and teenagers) are the most popular demographic segment in each medium**, save magazines in which elderly-related topics are most popular, and where teenagers, children and babies are in fact least popular. A tentative explanation for the seemingly aberrant preferences of magazine health news might lie in the fact that **no children's or teenager's magazines are included in the sample**. According to CIM (2014) most of the magazines in our sample generally target more mature audiences (e.g. Plus Magazine, Libelle).

Table 8. Overview of news items related to specific demographic segment per type of medium (N=348)

Demographic segment	Newspaper (N=170)	Television (N=35)	Magazine (N=68)	Radio (N=38)	Online (N=37)
Ages 0 -18	44,1%	68,6%	14,7%	50,0%	62,2%
Ages 19 - 50	32,4%	17,1%	36,8%	34,2%	5,4%
Ages 50 and older	23,5%	14,3%	48,5%	15,8%	32,4%

Table 9. Most popular demographic segments per media type (N=348)

medium	1 st place	2 nd place	3 rd place
Television	kids (68,6%)	adults (17,1%)	elderly (14,3%)
Radio	kids (50%)	adults (34,2%)	elderly (15,8%)
Newspaper	kids (44,1%)	adults (32,4%)	elderly (23,5%)
Online	kids (62,2%)	elderly (32,4%)	adults (5,4%)
Magazine	elderly (48,5%)	adults (36,8%)	kids (14,7%)

3.4 Treatment perspective: ‘Medical treatment’ vs. ‘lifestyle changes’

In section 3.2 we have already briefly discussed that in terms of thematic foci, lifestyle is mentioned half as much as medicine. In other words, our sample contains more articles dealing with the medical profession than with lifestyle in relation to health. This section will explore the relation between these two themes – or treatment perspectives – further. For each news item the coders indicated **whether a medical solution is proposed**, e.g. pharmaceuticals, surgery, vaccines, diagnostics tests, etc., **or whether the item proposes that the problem can be solved through lifestyle changes**, e.g. change in behavior, dietary pattern, physical exercise, thus appealing to the individual’s responsibility rather than attributing responsibility for the solution of the problem to the medical profession. Additionally, be it ‘medical treatment’ or ‘lifestyle change’, the coders also indicated whether the item mentions preventive or curative measures.

In 41,1% of the total sample, the issue is presented as a purely medical problem, i.e. a problem for which you should see your GP (or another specialist) who will most likely write you a prescription which you can take to your pharmacist. While the **‘medical treatment’-perspective dominates** the overall sample, **‘lifestyle-changes’ are invoked in 20,5% of the items**. In these items a health problem is described as depending on factors that lie within the control of the individual. For example, an article about obesity will emphasize physical activity and a healthy diet rather than a surgical or pharmaceutical intervention. Only in **7% of the total sample** do we get a more balanced account in which **both medical and lifestyle interventions are proposed**.

Table 10. ‘Medical treatment’ versus ‘lifestyle changes’ perspective per media type (N=981)

Medical treatment vs. Lifestyle change	Newspaper N=471	Tv N=102	Magazine N=202	Radio N=103	Online N=103	Total N=981
Medical treatment	46,9%	51,0%	31,2%	40,8%	24,3%	41.1%
Lifestyle change	14,9%	17,6%	35,6%	11,7%	28,2%	20.5%

Both	4,9%	5,9%	15,3%	2,9%	5,8%	7%
Neither	33,3%	25,5%	17,8%	44,7%	41,7%	31,4%

We must of course bear in mind that health news is not always centered around either perspective. For 31,4% of the sample neither ‘medical treatment’ nor ‘lifestyle change’ could be checked. These items mainly deal with political issues such as whether or not to reimburse a certain drug or treatment, or about replacement incomes for informal caregivers, etc. If we take a look at Table 10 we can see that this is most often the case in radio news broadcasts (44,7%), online (41,7%) and to a lesser extent in newspaper articles (33,3%). On television and in magazines, on the other hand, we usually can indicate whether the issue is approached in terms of ‘medical treatments’ and/or ‘lifestyle changes’. Only in, respectively, 25,5% and 17,8% of the items, this is not possible.

Put differently, radio and online news outlets either seem hesitant to take on a particular perspective (e.g. *sec* aetiological description of the disease) or they cover issues in which the treatment perspective does not apply. For instance, some population-wide health deficits can only be overcome if the government takes structural measures, e.g. compulsory vaccinations, drug-reimbursement policy. Television programs and magazines, on the other hand, seem keen on offering the reader a hands-on solution to his/her problem, while newspapers are somewhere in between radio & online and television & magazines.

In what follows, items for which neither treatment perspective could be indicated, will be excluded from the analysis. This means that we have reduced our total sample size from 981 to 673 cases. Excluding the instances where neither perspective is present makes it easier to understand and interpret the relative frequencies of the proportions of each perspective, especially if we want to compare different media types (viz. newspaper, magazine, television, online, radio). All results shown in Table 11 are statistically significant at a 0.01 level. The Phi and Cramer’s V coefficients ($\phi=0.314$ and $V=0.222$; $p<0.01$) indicate that there is a weak association between media type and treatment perspective.

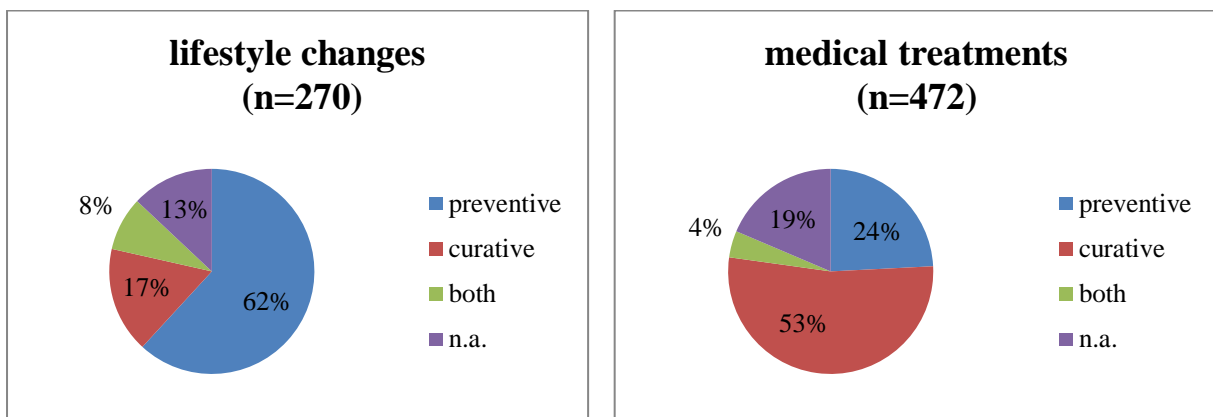
Table 11. ‘Medical treatment’ versus ‘lifestyle changes’ perspective per media type (N=673)

Medical treatment vs. Lifestyle change	Newspaper N=314	TV N=76	Magazine N=166	Radio N=103	Online N=103	Total N=673
Medical treatment	70.4%	68.4%	38%	73.6%	41.7%	59.8%
Lifestyle change	22.3%	23.7%	43.4%	21.1%	48.3%	29.9%
Both	7.3%	7.9%	18.6%	5.3%	10%	10.3%

Medical treatments are suggested mostly in items on the radio (73,7%), in newspapers (70,4%) and on television (68,4%); least in online (41,7%) and magazine (38%) news items. In the latter two media types, the ‘lifestyle changes’ perspective even outweighs the ‘medical treatment’ perspective, despite the overall prevalence of medical treatments. For the ‘lifestyle change’ perspective, on the other hand, the opposite is true. It mostly occurs in online (48,3%) and magazine (43,4%) items; least on the radio (21,1%), in newspapers (22,3%) and on television (23,7%). Note also that, although approximately 40% of the online sample could not be coded for either perspective, the ‘lifestyle changes’ perspective surpasses the ‘medical treatment’ perspective. The same tendency of **lifestyle outweighing medical interventions is observed only in magazines. Thus in all other media types under scrutiny here, medical treatments are more dominant.**

Before continuing with the discussion of preventive versus curative measures, it should be stressed that not every item in which a medical or lifestyle approach was suggested could be coded for preventive or curative treatments (as illustrated in Figure 2). Items that could not be coded in this way dealt with sensitive topics such as euthanasia or abortion, i.e. to label euthanasia as curative or abortion as preventive seems crude and disrespectful. Still, it is clear that these interventions fall under the medical jurisdiction. The same is true for the ‘lifestyle changes’ perspective. While it is clear that news items mentioning that regular light to moderate physical exercise is good for our cardiovascular system should be coded as ‘lifestyle’, these items do not always specify whether a curative or preventive approach is meant.

Figure 2. Pie charts curative and preventive measures in lifestyle and medical interventions



In general, results indicate that **if a news item suggests lifestyle interventions, then the focus predominantly lies on preventive measures** (as shown in Figure 2). Consequently, we might expect that media types in which we find a high occurrence of the ‘lifestyle changes’ perspective, will also have relatively much attention for preventive measures compared to media types in which the self-responsibility occurs less frequently. Our data, however, indicate that this contention is false. Magazines, as we have seen, have the highest rate of lifestyle treatments, but a very low rate of prevention (58.3%)¹⁰ and the highest count for curative measures (22.3%) relative to the other media types (cf. table 12). **Hence, the higher the rate of ‘self-responsibility’, the more variation in terms of curative and preventive measures (but still no 50/50 balance); and conversely, the lower the rate of ‘self-responsibility’ the more likely preventive measures will be stressed.**

Table 12. Preventive versus curative measures with the ‘lifestyle changes’ perspective across different media types

Lifestyle changes	Newspaper n=93	TV n=24	Magazine n=103	Radio n=15	Online n=35	Total n=270
Preventive	69.9%	62.5%	58.3%	46.7	57.1%	61.9%
Curative	12.9%	12.5%	22.3%	6.7	17.1%	16.7%
Both	5.4%	8.3%	10.7%	6.7	11.4%	8.5%
Not applicable	11.8%	16.7%	8.7%	40	14.3%	13%

¹⁰ The relative percentage for preventive measures with lifestyle interventions in radio, online and television items are in fact lower, but since absolute counts for the overall ‘lifestyle changes’ subsample is very low, they will not be taken into account here.

At the other end of the spectrum, Table 13 shows that if medical interventions are mentioned, the “better safe than sorry” motto from the lifestyle interventions is thrown overboard in favor of curative measures. **If a news article adopts a medicalization frame, our data show that in 53% of the items curative care is proposed rather than preventive action, which is present in only 24,2% of the articles.** Both preventive and curative care are present in only 4,2% of the articles. Furthermore, while radio and online news items in our sample never cover both preventive and curative medical treatments simultaneously, these two media types cover preventive and curative measures to the same extent. In newspaper, television and magazine items, on the other hand, the scales tip over in favor of curative care – a tendency which is particularly prominent in magazines (e.g. 14,9% preventive vs. 69,1% curative).

Table 13. Preventive versus curative measures with the ‘medical treatment’ perspective across different media types

Medical treatment	Newspaper n=244	TV n=58	Magazine n=94	Radio n=45	Online n=31	Total n=472
Preventive	24.2%	20.7%	14.9%	35.6%	41.9%	24.2%
Curative	50.4%	53.4%	69.1%	35.6%	48.4%	53%
Both	4.9%	5.2%	5.3%	0.0%	0.0%	4.2%
Not applicable	20.5%	20.7%	10.6%	28.9%	9.7%	18.6%

PART II: Discussion of sourcing practices in health news

3.5 Definition and operationalization of the concept ‘journalistic source’

Following Van Leuven (2013) in disentangling the conceptual vagueness surrounding the notion of **journalistic source**, this report will distinguish between two types of journalistic sources, i.e. **information actors** and **information sources**. Consider the following excerpt (Van Leuven 2013:5, translation ours, *italics* original)

“The existing literature uses the term *source* to refer to *people* who have said something noteworthy or who have been interviewed by journalists (e.g. Gans 1979), or to refer to *press agencies* (Boyd-Barrett 2002) and *press releases* (Gandy 1982) which provide the raw material for the eventual news item, etc.”

This quote illustrates that journalistic sources can be very diverse and that conceptual clarification is required. On the one hand, the **term ‘source’ will be used to refer to any kind of ‘material’ containing information**, i.e. news reports from press agencies, traditional media brands, social media, information subsidies, research conducted by the journalist or editorial team. On the other hand, **the term ‘actor’ will be used to refer to any ‘individual’ whose words were cited or paraphrased in the news item**. The remainder of this section will focus on different media types preference for either type of journalistic source (section 3.8), on the origin of the source material (section 0) as well as on the affiliation/profession of actors (section 3.9). In other words, journalists may have obtained access to the results from a scientific study conducted by a pharmaceutical company (source origin) via a

material news source such as a press release or via an *individual* employee/researcher/spokesperson of that pharmaceutical company (actor origin).

Traditionally, discussions of journalistic sourcing practices revolve around the opposition between, on the one hand, **elite/mainstream or top-down** and, on the other, **non-elite/non-mainstream or bottom-up sources** (Gans 1979). Elitist sources have privileged news access because they have political (or social) authority or because they have the human and financial resources for the production of press releases and for organizing media events such as press conferences; whereas non-elitist sources have a hard time gaining access to the news due to limited authority and resources (Van Leuven 2013). **Translated to a health news context, this means that scientists, doctors and politicians which are authoritative figures who stand in high esteem with the public, dominate journalists’ health news sourcing practices (Coleman, Thorson and Wilkins. 2011).** Yet, the preference for elitist sources in health news can also be explained by **the complicated nature of health news**. Often journalists rely on the interpretation of experts for news items about complicated medical issues (Briggs and Hallin 2010). Additionally, contrary to most other news beats, health news also frequently contains source material stemming from patients or ordinary citizens who share their personal experience (Coleman, Thorson and Wilkins 2011, and references therein).

3.6 Type of news item¹¹

Prima facie, it might seem a bit odd to discuss the types of news items included in the sample under the header ‘sourcing practices in health news’. However, considering the theoretical emphasis on elitist versus non-elitist sources, it is important to stress that **our sample includes not only editorial content such as factual news reports, interviews, visual stories and feature articles, but also user-generated content such as letters to the editor, op-ed pieces and Q&A sections.** Q&A sections are somewhat in-between editorial content and user-generated content, i.e. readers are given the chance to ask questions, but journalists still make the effort to contact specialists or to conduct their own research in order to answer the questions. Op-ed pieces are written by named authors who function as pundits and who are not part of the editorial board of the media brand. Letters to the editor, on the other hand, can be anonymous and are written by readers generally unknown to the wide public. In other words, **the presence of user-generated content can provide a preliminary clue to the presence of non-elitist bottom-up sources.** The results of the type of news items across different media, summarized in Table 14, show **that 5.3% of the sample consists of user-generated content** (representing the most basic least elitist bottom-up voices) mostly stemming from traditional print media.

Table 14. Types of news articles across different media types

Medium	News report	Interview/ feature article	visual story	Op-ed piece	letter to the editor	Q&A	Advertorial*
Newspaper	379	48	3	19	21	1	0
TV	53	40	1	0	0	8	0
Magazine	85	91	1	3	10	12	0
Radio	89	14	0	0	0	0	0
Online	101	0	0	0	0	2	0

¹¹ Based on Brian McNair’s typology of journalism (McNair 1998:10-11)

Total	707 (72.1%)	193 (19.7%)	5 (0.5%)	22 (2.2%)	31 (3.2%)	21 (2.1%)	2 (0.2%) ¹²
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3.7 Transparency of news items

Transparency (together with objectivity) is considered a core principle in the code of conduct for journalists, often serving as an indication of good quality journalism (Hellmueller, Vos & Poepsel, 2013). In practice, **transparency boils down to openness towards audiences in terms of sourcing (Rosentiel 2001), unless of course the source is confidential.** Journalists should try to be as open as possible with regard to where they get their information, so as **to inform the public about possible conflicts of interest or biased information (Rosentiel 2001).** Considering that health news is an “experience good” (Napoli 2001: 93), i.e. audiences might adjust their beliefs and behaviors according to what they read in the newspapers or see on television, it is crucial that journalists try to be as transparent as possible. **For example, if an expert on diabetes is interviewed, then journalists should mention that they have interviewed this expert and disclose his/her possible affiliations.** Does he/she work for a pharmaceutical company, university or governmental institution? Given this information, audiences can themselves discern whether the information provided by this source might be biased or not. This is important as trust in public institutions such as, for example politics, but also media (Eurobarometer, 2016).

Approximately one in ten news items (10.6%) do not contain a single reference to sources or actors. In other words, if no sources are mentioned, it would be completely unclear for the reader where the information stems from and how it should be interpreted. However, as illustrated in Table 15, there seem to be significant differences in terms of source transparency across the five media types ($X^2(16, N=981)=71.056, p<0.01$). Strikingly, **almost one in five news items (19.3%) in the magazine subsample does not contain source or actor references.** While most of these items are relatively short in length, this is certainly not the case for all magazine items without source disclosure. Contrary to magazine news items, **online news items are very transparent with a mere 1.9% of the online subsample that does not contain references to sources or actors. Several scholars have argued that hyperlinks and the absence of space restrictions in online journalism boost source transparency (De Maeyer 2015; Deuze 2003).** Our data seems to confirm this theoretical assumption of online journalism. Finally, it is worth noting that television is very transparent. More than one in four television news items contain four or more references to sources or actors. Again, this is probably in part due to the length of some items (e.g. documentaries, talk shows), but also due to the visual nature of television.

Table 15. Source transparency per medium

medium	zero sources /actors	one source/actor	two sources/actors	three sources/actors	four or more sources/actors
Magazine (n=202)	19.3%	34.7%	24.3%	8.9%	12.9%
Radio (n=103)	9.7%	39.8%	35%	13.6%	1.9%
Newspaper (n=471)	9.6%	32.9%	27.4%	17%	13.2%

¹² On www.gezondheid.be some articles get the tag [Tip of the Day] and usually consist of sponsored content. The article lay-out is identical to that of editorial content but above the article it said [advertorial]. These two items were included in the sample because they seem so similar to regular editorial content. In print issues advertorials were not coded, i.e. in freesheet Metro advertorials often occur but the typesetting and lay-out of these articles only weakly resembles that of editorial content, hence the exclusion of advertorials in print.

TV (n=102)	7.8%	26.5%	20.6%	18.6%	26.5%
Online (n=103)	1.9%	50.5%	26.2%	11.7%	9.7%
Total (N=981)	10.6%	35.2%	26.7%	14.6%	12.9%

3.8 Preference for journalistic sources: actors or sources?

Our complete sample of health news items (N=981) contains 788 sources and 1205 actors. On average this means that we have 0.803 (788/981) sources per news item and 1.228 (1205/981) actors per news item. However, preferences for either sources or actors, as well as the mean number of actor and source occurrences varies across different media types, as illustrated in Table 16. Both for the mean number of occurrences per news item for actors and for sources, a Kruskal-Wallis H test showed statistically significant differences across the different media types (sources: $X^2(4, N=793)=135.68, p < 0.01$ – actors: $X^2(4, N=1205)=184.53, p < 0.01$). However, further Post-hoc testing by means of Mann-Whitney U tests indicated that the mean number of sources does not significantly differ between, on the one hand, newspapers and magazines and between magazines and radio items on the other. All differences between mean number of actors per news item were statistically significant. Additionally, it is worth noting that, despite the overall predominance of ‘individual’ actors over ‘material’ sources, news items in the online subsample hardly contain actors. Finally, Table 16 also shows that sourcing health news on television mainly relies on ‘individual’ actors rather than ‘material’ sources and that when compared to the other media types, television health news items contain far more actors on average than the rest.

Table 16. Comparison actor and source frequency across different media types

Medium	Newspaper	TV	Magazine	Radio	Online
# Actors	640	255	196	98	16
Actors Mean	1.36	2.50	0.97	0.95	0.16
SD actors	1.32	2.44	1.53	0.60	0.46
# Sources	344	36	178	49	186
Sources Mean	0.73	0.34	0.88	0.46	1.81
SD sources	0.81	0.77	1.69	0.61	1.89

3.9 Origin of actors across different media: profession/affiliation

This section will discuss the affiliations/professions of the actors who occur as source of information in the news items. The complete health news sample (N=981) contained a total of 1205 actors. However, approximately one third of the news items (31.8%, N=981) does not contain actors. Note that this does not imply that material sources also are absent in these news items.

Contrary to what, based on traditional sourcing theory, seems to be a logical assumption, i.e. that elite sources would dominate the sample to the detriment of bottom-up voices such as ordinary citizens and civil society actors, is in fact incorrect. As illustrated in Table 17, **health news appears to reserve a prominent place for non-elite actors in the form of patients, friends and family of patients and ordinary vox pop** (cf. Stroobant et al. 2017). In fact, aggregated these groups of **ordinary citizen actors account for 34.6% of the total actor sample**. It could be argued that celebrities should not be considered as bottom-up sources because they have privileged news access due to their prominent societal status (as opposed to your anonymous average Joe). Nevertheless, if we exclude celebrities from this group, it still accounts for 27.7% of the sample. Patients as well as friends

and family of patients are an important source for health information because their experience gives them credibility. While patients and ordinary citizens are considered non-elite, bottom-up sources, expert sources such as academics (14.7%), medical professionals (19.2%)¹³, politicians (10.6%) and spokespeople from government institutions (4.8%) (e.g. WIV in Flanders, or CDC in U.S.A.) are elite, top-down sources. The remainder of the sample is compiled of patient organizations (3.7%), Industry (3.1%), NGO/non-profit (3%) (e.g. Red Cross), sickness funds, non-health-related professional organizations (2.7%) (e.g. trade unions, association of firefighters) other (1.2%) (e.g. spokesperson of British Catholic Church), (1.7%), and consumer organizations (0.1%). **Bear in mind, however, that some of the groups of actors with seemingly limited news access such as sickness funds or industry do in fact play a crucial role in the Belgian national healthcare system.**

Additionally, it appears that the prominence of each actor category may differ across different media types. **Print magazines seem to be the pre-eminent medium for patients.** No less than 28.1% of individual actors in magazine news items are patients. **Television news items also contain more patients than do newspapers and radio news items, but still comes nowhere near the magazines.** However, television news items do not only seem to differ with regard to the prominence of patients, also ordinary citizens who are not patients get a chance to express their opinion in vox pop interviews. In print news media, the average man in the street gets a chance to speak out, for example, in letter to the editors or Q&A sections, but still television is the medium *par excellence* for the average man in the street. The expert voices of the more elitist actor categories such as academics, politicians and spokespeople for government institutions, on the contrary, are relatively small compared to print and radio news. Especially academics, despite their overall predominance in the sample, do not find their way to the small screen.

Table 17. Origin of actors across different media: profession/affiliation

Actor Category	Newspaper N=640	TV N=255	Magazine N=196	Radio N=98	Online ¹⁴ N=16	Total N=1205
Patient ordinary citizen	6,6%	18%	28,1%	9,2%	-	12,6%
Patient celebrity	3,1%	1,6%	6,6%	-	-	3,1%
Ordinary citizen	4,1%	17,3%	9,7%	1%	-	7,5%
Celebrity	1,4%	1,2%	2%	1%	-	1,4%
Inner Circle patient	4,7%	12,2%	12,2%	7,1%	-	7,6%
Inner circle patient celebrity	1,4%	3,1%	6,1%	-	-	2,4%
Alternative medicine	0,3%	1,2%	1%	-	-	0,6%
General practitioner	0,8%	3,5%	0,5%	3,1%	6,3%	1,6%
Specialist doctor	13,8%	10,2%	7,1%	9,2%	12,5%	11,5%
Paramedic	3%	2%	3,6%	1%	-	2,7%
Health-related professional association	4,1%	1,6%	3,1%	5,1%	-	3,4%
Non-health-related professional association	3,9%	1,6%	-	4,1%	-	2,7%
Sickness funds	2,8%	1,2%	-	-	-	1,7%
Patient organization	3,4%	3,5%	1,5%	10,2%	6,3%	3,7%

¹³ GP: 1.6%, + Specialists 11.5% + Paramedics: 2.7% + Health-related professional associations: 3.4%

¹⁴ Results of actors occurring online will not be included in our discussion of actor occurrence across different media types because of the overall low absolute counts of online actors.

Industry	4,2%	3,1%	1%	-	-	3,1%
Academic	17,3%	7,1%	11,7%	15,3%	62,5%	14,7%
Politicians	14,8%	5,5%	-	18,4%	6,3%	10,6%
Government institution spokesperson	5,8%	2,4%	2%	11,2%	-	4,8%
NGO/non-profit	3,3%	2,7%	2%	3,1%	6,3%	3%
Consumer organization	0,2%	-	-	-	-	0,1%
Other	1,1%	1,2%	1,5%	-	-	1,2%

Finally, with regard to the **gender of the actors** – although not the main focus of this report – an interesting tendency can be observed. Despite their overall predominance, male actors are outnumbered by female actors in the non-elitist categories ‘patient ordinary citizen’, ‘ordinary citizen’ and ‘inner circle patient’. **Elitist professions and functions which require high level skills**, on the contrary, **are predominantly fulfilled by male actors**. In other words, our data indicate a gender bias in actor preferences for health news.

Table 18. Proportions of male and female actors for different actor categories

Actor Category	Male	Female
Total (N=1093)¹⁵	59.7%	40.3%
Patient ordinary citizen	36.4%	63.6%
Patient celebrity	56.8%	43.2%
Ordinary citizen	41.9%	58.1%
Celebrity	58.8%	41.2%
Inner Circle patient	33%	67%
Inner circle patient celebrity	55.2%	44.8%
Alternative medicine	71.4%	28.6%
General practitioner	83.3%	16.7%
Specialist doctor	84.5%	15.5%
Paramedic	43.3%	56.7%
Health-related professional association	91.7%	8.3%
Non-health-related professional association	67.9%	32.1%
Sickness funds	80%	20%
Patient organization	57.9%	42.1%
Industry	77.1%	22.9%
Academic	77.5%	22.5%
Politicians	50.4%	49.6%
Government institution spokesperson	47.7%	52.3%
NGO/non-profit	51.1%	48.5%
Consumer organization	0%	100%
Other	92.3%	7.7%

¹⁵ The sample contained 112 cases where the actor’s sex could not be identified, e.g. due to generic descriptions.

3.10 Origin of sources across different media: stakeholder categories

This section will discuss the origin of the source material journalists used for compiling the news items in our sample. In total the coders identified 793 sources. Again, it should be stressed that this does not imply that individual actors as source are absent in news items.

A first crucial difference with the actor sample, is the presence of so-called **media sources** which are per definition material and therefore absent in the actor sample. To facilitate the news-making process, journalists have always relied on material produced by colleague journalists who either work for press agencies or other news media. **Taken together source material from press agencies and other traditional news brands accounts for 25.8% of the sources.** In other words, no less than one in four sources encountered in the health news sample has a **journalistic origin**. An interesting observation in this respect is that approximately **30% of the media sources used are foreign**. Secondly, it seems that for scientific research, it is the actual study or **journal article**, rather than the researcher, which makes it to the news. **As a side note to this finding, however, almost one in five (17.2%) studies are unidentifiable.** This means that the news item does not provide enough information as to where the study was published nor by whom it was conducted. Usually, these news items refer to scientific news with phrases such as “Recent scientific studies show that...”. This tendency has an adverse effect on the transparency of news, which – as argued in section 3.7 – is an important yardstick for assessing the quality of news. Thirdly, source material stemming from ordinary citizens such as blogposts, tweets or video clips are rarely used as explicit sources. Only a mere 4.7% of all sources come from ordinary citizens. Given the recent rise of social media and the accompanying theoretical assumption that this would lead to an increased access to the news for citizens (Van Leuven 2013), it is surprising that source material stemming from ordinary citizens is fairly scarce. In fact, our data show that **social media are seldom mentioned as source channel**, i.e. 3.7% of all source material reached the journalist via social media. Nevertheless, it is true that mainly messages from citizens are picked up via social media (ca. 70%).

Table 19. Origin of sources across different media: stakeholder categories

	Newspaper N=344	TV N=36	Magazine N=178	Radio N=49	Online N=186	Total N=793
Press agency	10,8%	-	-	-	-	4.7%
Traditional media brand	24,1%	25%	19,7%	46,9%	9,1%	21.1%
Popular media (movies, documentaries, books)	2%	11,1%	6,2%	-	0,5%	2.9%
Industry	1,2%	2,8%	10,7%	-	2,7%	3.7%
Policy-makers	9,3%	2,8%	5,1%	2%	15,1%	9%
Government institutions	9,9%	22,2%	3,4%	20,4%	10,8%	9.8%
Academic world	22,7%	11,1%	38,8%	10,2%	40,9%	29.3%
Sickness funds	4,4%	2,8%	1,7%	4,1%	-	2.6%
Consumer organization	0,6%	-	0,6%	-	1,6%	0.8%
Patient organization	3,8%	2,8%	5,1%	4,1%	6,5%	4.7%
Associations of health-related professionals	2%	11,1%	1,7%	2%	6,5%	3.4%
Ordinary Citizen	5,2%	5,6%	6,7%	2%	2,2%	4.7%
Non-profit	1,5%	2,8%	0,6%	-	3,8%	1.8%

Associations of non-health related professionals	2,6%	-	-	8,2%	0,5%	1.8%
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4 Conclusion

The perspectives on and amount of health news that is coming our way on a daily basis and via various media types (i.e. newspapers, magazines, online, radio and television) has a considerable influence on the public perception of health and, therefore, ultimately also on the public's health behavior. Hence, the purpose of this study to explore the contents of a month's worth of Flemish health news.

Results of this quantitative media monitoring indicate that, besides news about epidemics (which was very frequent due to a seasonal bias in the sampling procedure), cancer accounts for 11.4% of the news items that focus on specific diseases. Secondly, it seems that issues concerning diets & nutrition also receive a lot of attention in health news (11.3%). Mental illnesses close the top three ranking of most covered health issues, accounting for 10.4%. **This illustrates that news media define health very broadly. Not only physical aspects of health are covered, but also mental and even lifestyle issues such as dietary patterns are increasingly covered from a health perspective.**

Furthermore, we observed that this is also partly confirmed when looking at the **thematic angles** from which health topics are covered because one in four (25.8%) news items makes reference to lifestyle habits. Other popular thematic angles are use of medication (45.6%) and policy (33.9%). At the other end of the spectrum, issues relating to the production of pharmaceuticals and the underlying (business) logic of these companies only occur in a handful of articles (4.8%). **Despite their crucial role in the healthcare system, health news is hardly covered from the perspective of the pharmaceutical companies involved.**

While this study had surmised that health news would be considerably age-related, more specifically *old age*-related, the news items in the sample showed no such inclination. **In fact, no less than 64.5% of the sample is not specifically age-related.** Contrary to our expectations which are based on recent demographic evolutions (viz. the aging of the population), children were the focus of most news items that were explicitly age-related, except in magazines. This can be explained by the fact that the magazines in the sample target more mature audiences rather than teenagers or adolescents. On the whole, it seems that health journalists have the widest possible audience in mind when they are writing their stories.

With reference to **the treatment perspective** that is adopted, **our data demonstrates a proclivity for medical treatments.** The issue is presented as a purely medical problem in 41.1% of the total sample, as opposed to 20.5% of the news items that invoke lifestyle changes. Only in 7% of the total sample a more balanced account is given in which both medical and lifestyle interventions are proposed. It is true that the overall sample is dominated by news items proposing medical interventions, yet **significant differences were found across different media types.** For example, **in magazines – and to a lesser extent online – news items involving lifestyle changes and those involving medical interventions are equally present.** Additionally, magazines contain most articles where both treatment perspectives are present simultaneously. That is to say, while 10.3% of all news items suggest both lifestyle changes and medical interventions simultaneously, this is true for 18.6% of all magazine items. On the contrary, news items focusing exclusively on medical interventions occur mostly on the radio (73.6%), in newspapers (70.4%), and on television (68.4%).

As far as **preventive versus curative measures** are concerned, a clear trend can be observed. **Medical interventions are mostly curative (53%), while lifestyle changes are mostly preventive in nature (62%).** Of course, it should be stressed that this finding does not imply that media types in which items written from the 'lifestyle changes' perspective, also have the highest degree of attention for preventive measures. Magazine news items, as pointed out above, have the highest rate of articles invoking lifestyle changes, but the lowest rate of preventive lifestyle changes. **In other words, the higher the number of items covering lifestyle changes, the more variation in terms of preventive versus curative lifestyle changes.** Likewise, media types in which medical interventions are stressed most frequently, also show more variation between curative and preventive measures.

A final observation that can be made on the level of the article is that **approximately 10% of all the news items do not contain a single reference to sources or actors.** In other words, one in ten news items do not refer to either a material source nor to an individual actor. As mentioned previously, the **absence of transparency** in news items, may affect the perceived quality of the news. Moreover, the absence of any kind of source reference hinders possibilities for critical reflection on the trustworthiness of the source and by consequence of the news itself on the part of the news consumer. The situation is most dire **in magazines where 19.3% of news items contain zero source or actor mentions.** Most transparent media types are online (due to hyperlinking and absence of space restrictions) and television news (due to visual nature). Respectively, in these two media types 1.9% and 7.8% of news items do not refer to their sources. Yet, television news items on average contain more sources than online items.

Regarding the use of actors, this study found that besides experts such as academics (14.7%) and specialist doctors (11.5%), ordinary citizens as patients and friends/family thereof account for 27.7% of the sample. Print magazines seem to be the pre-eminent medium for patients. No less than 28.1% of individual actors in magazine news items are patients. Television news items also contain more patients (18%) than do newspapers (6.6%) and radio news items (9.2%), but still comes nowhere near the magazines. Expert voices, on the other hand, occur most frequently in those media where patients are scarcely heard. Academics, for example, occur least on television (7.1%) and in magazines (11.7%), but are relatively prominent on the radio (15.3%) and in newspapers (17.3%). **Online news items are largely disregarded because they hardly contain actors (which is, of course, in itself an interesting finding).**

Finally, concerning material sources we observe that, despite the absence of actors online, material sources are most prominent on websites. Firstly, it should be stressed that **one in four sources have a journalistic origin.** That is to say, 25.8% of the material sources encountered in the news items stem either from **press agencies (e.g. Belga, Reuters, AFP, etc.) or other news outlets.** (In radio news, the amount of media sources is as high as 46.9%). Furthermore, 30% of the media sources used are foreign. Consequently, it could be argued that health journalists in Flanders rely on other media for their (health) coverage due to the heavy workload they are faced with. Many journalism scholars have suggested that the practice of **using media sources is indicative of so-called churnalism or copy-paste journalism which is generally associated with low quality journalism (Davies 2008).** However, further research is needed to evaluate the actual quality of the news items based entirely on media sources. Besides media sources, material source use seems to be dominated by **academic/scientific studies (29.3%).** Especially online (40.9%) and in magazines (38.8%), academic sources prevail. For online media, we noticed that academic actors did not occur very frequently. As it seems, the absence of academic actors is compensated by the use of material academic sources. Finally, source material stemming from ordinary citizens, despite their frequent occurrence as actors and the rise of social media as communication channel for the masses, is scarce (4.7%).

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Appendices

Appendix 1: Media titles included in the sample

Newspapers (5): De Standaard (Mediahuis), Het Nieuwsblad (Mediahuis), De Morgen (De Persgroep), Het Laatste Nieuws (De Persgroep), Metro (Mass Transit Media, joint venture Concentra (51%) and Rossel (49%))

Magazines (10): Dag Allemaal (De Persgroep), Libelle (Sanoma) , Flair (Sanoma), Body Talk (Roularta), Vitaya Magazine (Sanoma together with Mediaaan), Knack (Roularta), Eos (Cascade), Humo (Sanoma), P-Magazine (Think Media Magazines), Plus magazine (Roularta)

Television (14): Het Nieuws (Mediaaan), Het Journaal (VRT), Ook getest op mensen (VRT), Reyers Laat (VRT), Terzake (VRT), Telefacts (Mediaaan), Bart & Siska (VRT), De Zevende Dag (VRT), Straffe Verhalen (Vijf, De Vijver media), Koppen XL (VRT), Het Journaal op Canvas (VRT), Het Spreekuur (Vijf, De Vijver media), Café Corsari (VRT), Koppen (VRT)

Radio (4): Het nieuws op Radio 1 (VRT), De Ochtend (VRT), Vandaag (VRT), Het nieuws op Q-music (Mediaaan)

Websites (2): www.gezondheid.be (commercial – Het mediahuis and Rossel) & www.gezondhedenwetenschap.be (non-profit, CEBAM – Cochrane foundation)

Appendix 2: Sample compilation news items (N=981)

Media title	Number of items	Media title	Number of items
<u>Newspapers</u>	<u>471</u>	<u>Radio</u>	<u>103</u>
Het Laatste Nieuws	123	Het Nieuws op Radio 1	53
Het Nieuwsblad	141	Het Nieuws op Q	34
De Morgen	69	De Ochtend	12
De Standaard	94	Vandaag	4
Metro	44	<u>Online</u>	<u>103</u>
<u>Television</u>	<u>102</u>	gezondheid	83
Het Nieuws	44	Gezondheid & Wetenschap	20
Het Journaal	24	<u>Magazines</u>	<u>202</u>
Ook Getest op Mensen	11	Dag Allemaal	46
Reyers Laat	7	Libelle	35
Terzake	6	Flair	29
Telefacts	3	Bodytalk	25
Bart & Siska	2	Knack	16
De Zevende Dag	2	Plus Magazine	15
Straffe Verhalen	1	Vitaya Magazine	15
Koppen XL	1	Eos	10
Het Journaal op canvas	1	Humo	6
		P magazine	5