

Reassembling health news

*A mixed methods investigation of health news sources
in Flanders*

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Submitted to the Faculty of Social Sciences of Ghent University, in fulfilment of
the requirements for the Degree of Doctor in Communication Sciences

Academic year: 2018-2019

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LIST OF ABBREVIATIONS

ACA	Automated Content Analysis
ANT	Actor-Network-Theory
CMS	Content Management System
GEZ	https://www.gezondheid.be
G&W	https://www.gezondheidenwetenschap.be
HTML	HyperText Markup Language
NA	Network Analysis
PAS	Parental Alienation Syndrome
SERP	Search Engine Result Page
SNA	Social Network Analysis
STS	Science and Technology Studies
TLD	Top-level domain
URL	Uniform Resource Locator
VOSON	Virtual Observatory for the Study of Online Networks
WHO	World Health Organization

ACKNOWLEDGEMENTS

Four full years. That is what it took me to complete this dissertation. Of course “time” is not the only requirement for writing a dissertation. Deadlines are awful and time is clearly of the essence, but without the support of my family, my friends and my colleagues, I could have never completed this ambitious project.

When I started this dissertation, I hardly knew anything about journalism, let alone about the field of ‘Journalism Studies’. Sure, I read and watched the news, but about news production I knew virtually nothing. All I knew was that I wanted to spend time studying something that was close to people’s everyday lives. Linguistics was my passion. Actually, it still is. But after five years of formal training in literature and linguistics, I felt it was time to put all that abstract knowledge about language and communication to good use. Health news presented itself as the ideal subject to do this.

And here I am now. I always found it funny that a whole academic field of enquiry was dedicated to something that is essentially just a profession. (Can you imagine ‘Bakery Studies’ or something like ‘The International Journal of Welding and Carpentry’? - I think that would be really funny. Purely hypothetically though, I can see the advantages of holding a PhD in ‘Bakery Studies’.) However, I am glad that I ventured into the field of ‘Journalism Studies’ because it made me realize how important and central news and journalism are to society. When I used to watch the news and read the paper, I never realized what a complex profession journalism actually was. Reporters deserve more respect than what they nowadays seem to be getting. Any politician attacking journalists and the free press should be ASHAMED. There, I said it. I am glad that this is off my chest. Now let us proceed to the real important stuff: the thank-yous!

To my supervisor, Karin, I want to say thank you for making the best decision ever. That is, for trusting me, with my background in linguistics, to travel down the road of journalism. Your home, and now my home too ☺ It was a difficult journey but thanks to your guidance, your support and the multiple moments of feedback where I was able to tap into your vast knowledge of the Belgian journalistic landscape I was able to bring this ambitious endeavour to a successful conclusion.

I also want to thank Sarah Van Leuven whose work on news sourcing was a great inspiration for my own research. But also your guidance in showing me the ropes of being an academic (rather than the exalted student I was) and for being there when I was taking my first baby steps in the field of journalism.

Sarah, Jana and Violetta, what would I have done without you? I doubt that I would have ever gotten where I am now. Thank you for being such great colleagues. I loved the chats, the gossip, the cosy lunches and the inspiring discussions we had about health, media (and the rest).

Then there are of course also my co-supervisors, Stijn and Geert, who supported me and provided feedback whenever I asked for it. Thanks, working with you was a great experience. The same goes for the other members of the GOA-project “(De)constructing health news”, all the members of the Center for Journalism Studies, and all the other department members who helped me with questions, large and small, without asking anything in return. I also want to thank all the people who just engaged in some random tittle-tattle with me by the coffee machine in the lounge or at one of the ‘Sfeerbeher’ get-togethers. It is fun to work in place where you are surrounded by other ever-enthusiastic communication scientists!

To the technical staff: Liesbet, Greet, Johan and Tannekin, I cannot even begin to count all the things I have asked your help for. You are way too kind!

Finally, I also want to thank my parents, my brother and sister, my whole family and my friends for being there, for supporting me, for teaching me about life, for comforting me, for listening to me, for having fun, and simply for being you (and for letting me be me)!

Joyce

Before they were displaced in our consciousness by the news, religions placed the task of preparing us for death at the heart of their collective missions. The needs and fears that we once brought to our places of worship have not disappeared in the secular age: we remain tormented by anxiety and a longing for comfort in relation to mortality. But these emotions receive little public acknowledgement, being left instead to haunt us in the small hours, while in the more practical and functional parts of the day the news keeps drawing our attention, with deranged zeal, to the newly discovered anticarcinogenic properties of blueberries and a daily teaspoonful of walnut oil.

de Botton, *The News: A User's Manual* (2014, p. 221)

1 INTRODUCTION

1.1 This is why health news matters

Health news is often overlooked as an interesting research topic within the field of journalism studies because news and journalism are principally defined as a function of democracy (Briggs & Hallin, 2016, pp. 5-7). In this definition, journalism features as an essential ingredient for safeguarding democracy (McQuail, 1983/2010, p. 168; Zelizer, 2013). Historically, this has led to a functional definition of journalism as required “to provide citizens with the information they need to be free and self-governing” (Harcup, 2014; Kovach & Rosenstiel, 2001, p. 17). However, as will become clear throughout the theoretical chapters, a narrow definition of journalism is problematic for an investigation of health news because softer forms of journalism such as health reporting, sports or lifestyle journalism do not neatly tie in with such normative, political assumptions. As a consequence, these forms of journalism have long been beyond the scope of journalism scholarship (Briggs & Hallin, 2016, pp. 5-7; Hanusch, 2012; Marinescu & Mitu, 2016; Seale, 2002; Zelizer, 2011). This implies that, in contrast to the ubiquity of health news, empirical and theoretical accounts of media and health within the field of journalism studies are thin on the ground.

Nevertheless, despite health news’ low priority on journalism studies’ overall research agenda which is geared towards political reporting, this dissertation will explicitly put forth three arguments for “taking health news seriously” (Zelizer, 2004). After all, that something has not been studied before does not in itself justify that it should be studied today. That journalism scholarship has left the study of health news mainly to the applied field of public health communication may indicate that health news is just simply not an interesting research venue. This dissertation obviously disagrees.

First, since most people firstly (and sometimes even exclusively) encounter biomedical objects through their representations in the media rather than through first-hand, real life experience, it becomes almost impossible to separate health from media (Briggs, 2011a; Marchetti, 2010). Consider, for instance, the recent Ebola epidemic. Only few people in Belgium (such as researchers, or aid workers returning from the Ebola-stricken countries in West Africa) have had first-hand experiences with the Ebola virus, yet large parts of the population are nevertheless familiar with the Ebola virus because it was so heavily covered by the Flemish media (Stroobant, De Dobbelaer & Raeymaeckers, 2016). In other words, news media, especially online media, are primary sources for news and information about health (Briggs & Hallin, 2016; PEW, 2013; Seale, 2002).

Secondly, health news has the capacity to influence public perception of what is healthy and what is not. This leads to the conclusion that health news also has the potential to influence how people make decisions concerning their own health or that of family-members or friends (Evans et al., 2014; Marinescu & Mitu, 2016; Rainsborough, 2016; Stryker, Moriarty & Jensen, 2008; Walsh-Childers,

2017). Therefore, given the close connections between health and media and the potential impact of coverage about a subject that potentially concerns literally everyone, it is high time that journalism and media scholarship treat health news as a site worthy of the fullest attention.

Thirdly, and most importantly, health news is not just a linear translation of biomedical knowledge from the field of biomedicine to a lay audience (Hallin & Briggs, 2015). The production of health news is an original journalistic enterprise, not just an uninteresting exercise of translation or of ‘mouthpiece’ public health communication. This translation metaphor is untenable because both medicine and journalism are socially embedded practices. Consequently, the language of health news is not ‘neutral’. Instead, biomedical objects and scientific facts are socially embedded constructs even before they become news (Latour & Woolgar, 1979). This means that health news is ideologically infused with cultural, social, economic and political meanings that are indexically contingent upon the networked process of co-production that health news sourcing inevitably entails (Briggs & Hallin, 2007, 2016; Lupton, 1994; 1995). Taking Flanders as an empirical point of departure, this dissertation aims to fill this gap by retracing the underlying, often hidden, sourcing routines of health journalists.

Before continuing to a more detailed delineation and description of the research topic, this dissertation’s geographical setting first requires some additional explanation. The region of Flanders, where this dissertation is set, represents a relatively small, Dutch-language news market within the Belgian national context. In this respect, it is important to remember two things. Firstly, Belgium is linguistically divided into three regions: Flanders (i.e. the Dutch-speaking, northern region), Wallonia (i.e. the French-speaking, southern region), and the much smaller East Cantons (i.e. the German-speaking, eastern region). As a consequence, there are no national Belgian media. In other words, an investigation of *Belgian* health news would add an extra cross-linguistic and cross-cultural dimension to the analysis. While such comparisons would undoubtedly yield interesting results, to do so is beyond the scope of this dissertation. Secondly, since this dissertation is funded via a *Flemish* university (i.e. Ghent University), the focus on *Flanders* seems a logical choice. Hence, the emphasis on Flanders is in the first place a pragmatic choice. Nevertheless, studying Flemish health news is still interesting from an international perspective because the Flemish (and by extension the Belgian) healthcare system is organized as a social health insurance system (SHI). This means that, contrary to the Anglo-Saxon world (except the USA)¹, Southern Europe and Scandinavia, the Flemish system is corporatist-governed (rather than state-governed) and funded through social contributions that are collected separately from other taxes (Saltman, Busse & Figueras, 2004). Hence, the multiplicity of different stakeholders that actively partake in the health policy decision-making process in Flanders is larger than in other healthcare systems. This undoubtedly influences the range of sources that try to

¹ The United States are the only democratic, Western, country with a private health insurance system (PHI) that does not provide universal coverage for its citizens (Saltman et al., 2004).

gain access to the news arena when it comes to health. Lastly, for the sake of clarity, it should also be noted that this dissertation will at times alternate between terms referring to the regional context, Flanders, and the national context, Belgium, because, despite the absence of national media, health policy is predominantly regulated through national structures (Van den Bogaert, Ayala & Bracke, 2017).

1.2 This is why sources matter

The reason why this dissertation explores *news sources* and not some other aspect of the news production process is straightforward and simple. Despite being formulated now already more than thirty years ago, Sigal's infinitely famous truism which states that "news is not what happens, but what someone says has happened or will happen" still guides this analysis (Sigal, 1986, p. 15). Nuances aside, Sigal (1986) says that "sources make the news". Journalism is unthinkable without relying on news sources. Consequently, sourcing routines are at the heart of journalism practice (Berkowitz 2009; Broersma & Graham, 2012; Manning, 2001; McNair, 1998). Another motivating factor is that sources exert specific agenda-setting and framing influences on the news content (McCombs & Shaw, 1972; Scheufele & Tewkesbury, 2007). That is, sources can push certain stories; or vice versa, sources can try to prevent some stories from getting told. Depending on the prominence that journalists give to particular sources (Cook, 1998 as cited in Strömbäck & Nord, 2006; Franklin, 2011; Harder, Paulussen, & van Aelst, 2016; Reich, 2009), sources can also help frame an issue thus influencing not just which issues should concern the public but also what to think about those issues. Since news sources play an important role in setting the news agenda and in framing the news, it is important to examine which sources get a voice (and which do not) as well as why that is the case (or not).

Given the centrality of the concept 'news source' and the diversity of topics that can be treated as health news, these two concepts require a brief introduction here before continuing to a more in-depth discussion of these concepts in the ensuing theoretical and methodological sections. In short, this dissertation's definition of news sources is not limited to "the people reporters turn to for their information" (Berkowitz, 2009, p. 109), but also includes non-human things such as documents, databases, other news media, medical journals, et cetera (cf. point 4.2.1.2). The definition of health news, as applied in this dissertation, extends beyond the prototypical news stories that report novel biomedical research findings with the potential – often in a far-away future – to lengthen the average human life span (cf. point 4.2.1.1). Besides news about medical science, health news is also understood to include human-interest stories about a diversity of topics ranging from illness experience, over general lifestyle issues, fitness or wellness, to food and nutrition, stories about the workings of the healthcare system as a socio-political institution or about conditions for drug reimbursement (Bauer, 1998; Briggs & Hallin, 2016; Hanusch, 2012; Hinnant, Len-Riós & Young, 2013; Holland, 2017; Saikkonen, 2017).

1.3 Research questions and general objective

In spite of the extensive body of literature concerning news sourcing practices (e.g. Broersma & Graham, 2013; De Keyser & Raeymaeckers, 2012; Dimitrova & Strömbäck, 2009; Matthews, 2013; O'Neill & O'Connor, 2008; Reich, 2009; 2015; 2016; Tiffen et al., 2014; Van Leuven, Deprez & Raeymaeckers, 2013; Van Leuven, Heinrich & Deprez, 2015), sourcing in specialized beats such as health has received scant attention from media scholars. In accordance with the argument on why health news remained a somewhat neglected area within journalism studies, most attention for sourcing centres around political reporting (e.g. Davis, 2009; Lewis, Williams & Franklin, 2008; Strömbäck & Nord, 2006), especially during election times (e.g. Broersma & Graham, 2012; Dimitrova & Strömbäck, 2012; Schoenbach, De Ridder & Lauf, 2001; van Aelst, Maddens, Noppe & Fiers, 2008). For health news, the exploration of news sources is usually not a goal in itself but rather functions as one aspect within a broader construct or frame (e.g. Hallin, Brandt & Briggs, 2013; Wallington, Blake, Taylor-Clark & Viswanath, 2010), mostly concerning specific issues or illnesses (e.g. Bubela & Caulfield, 2004; Clarke, 2006; Holton, Weberling, Clarke & Smith, 2012; van Trigt, De Jong-Van Den Berg, Haaijer-Ruskamp, Willems & Tromp, 1994) in one specific medium (e.g. Dixon & Clarke, 2012; Tanner, Friedman & Zheng, 2015; Verhoeven, 2008). Additionally, studies that explicitly consider the nature of the relationship between health journalists and their sources are not only relatively scarce, but also focus on a narrow class of corporate news sources, mainly from the pharmaceutical industry (De Dobbelaer, Van Leuven, & Raeymaeckers, 2017; Lipworth et al., 2012; Lipworth, Kerridge, Morrell, Forsyth & Jordens, 2015; Morell, Forsyth, Lipworth, Kerridge & Jordens, 2015).

This narrow focus on just one subset of potential health news sources is problematic because pharmaceutical companies are only one of many stakeholders that partake in the co-production of health news (Briggs & Hallin, 2016; Declercq, 2018; Clarke, Shim, Mamo, Fosket & Fishman, 2003). Therefore, a more comprehensive analysis that actively recognizes the growing number of health stakeholders in neo-liberal healthcare markets seems warranted. Furthermore, since health journalists are generally well aware of pharmaceutical companies' strategic efforts to influence the news via public relations (Forsyth et al., 2012; Len-Riós, Hinnant & Park, 2009a; Len-Riós, Hinnant, Park, Cameron, Frisby & Lee, 2009b; Tanner et al., 2015), this raises the question of which other sources health journalists rely on; why they do so; as well as how this influences the eventual news content. The first research question of this dissertation therefore goes as follows:

RQ1: Which sources are used in health news?

By focusing on a broad spectrum of media types, this dissertation addresses a second somewhat neglected aspect within the field of journalism studies, i.e. cross-media comparative research (Reich,

2016). Despite recent claims of media convergence that could have generated a renewed interest in cross-media comparisons, most comparative journalism research explores cross-national differences rather than differences between different media types (Wahl-Jorgensen & Hanitzsch, 2009; Quandt & Singer, 2009; Reich, 2015). Notwithstanding the scarcity of cross-media comparisons, media convergence raises quintessential questions for both journalism practice and theory. Spurred by technological and economic developments, newsrooms underwent substantial reorganization in order to engage in multi-platform publishing. For journalists' everyday practice this implies producing more content in less time, acquiring new digital skills, sharing the newsroom with a new, younger breed of online journalists, and increased audience participation (Colson & Heinderyckx, 2008; Domingo et al., 2008; Lee-Wright, Phillips & Witschge, 2012; Paulussen, 2012; Quandt & Singer, 2009). The principal question, then, is whether convergence is nothing more than a cost-cutting measure that leads to a blunt homogenization of news content across distinct media types or whether convergence generates better journalism (Quinn, 2005; Reich, 2009, 2011, 2016; Thelen, Kaplan & Bradley, 2003; Tiffen et al., 2014). Hence, the second central research question of this dissertation asks whether the sources of health news differ across media types.

RQ2: Does the use of sources differ among various media types? And if so, how are media types different?

Finally, in order to move beyond the mere observation of specific sourcing patterns, this dissertation will dig deeper into the underlying characteristics that structure and shape the observed routines. This third and final research question is thus centrally concerned with the journalist-source relation from a more qualitative perspective. It asks how both media professionals and health professionals who often feature as sources in health news perceive the sourcing process and how these perceptions may, in turn, influence the overall news making process (Friedman, Tanner & Rose, 2014; Forsyth et al. 2012; Hinnant, Len-Riós & Oh, 2012; Secko, Amend & Friday, 2013; Wallington et al., 2010). In other words, while research questions one and two will provide rich pictures of how health news is sourced from a quantitative comparative perspective, research question three is primarily concerned with explaining sourcing patterns in health news by drawing on a unique combination of vantage points of both media and health professionals. Research question three thus runs as follows:

RQ3: How do media and health professionals perceive the sourcing process of health news and how (if at all) do these perceptions impact the co-production of health news (and thus ultimately health news itself)?

By asking these questions, this dissertation aims to contribute to the existing literature in the field of journalism studies on how news is sourced in a specialized beat such as health within various media types. The main theoretical objective consists of establishing an informed dialogue between, on the one hand, the canonical journalism studies literature on news sourcing that draws on the sociology of sources and – albeit to a lesser extent – on the materiality of journalism, and, on the other hand, certain health-specific works from outside the field of journalism studies. In order to shed light on broader socio-cultural, economic and political developments, an integrative framework of *biomediatization* will be invoked (Briggs & Hallin, 2016). Biomediatization is integrative because it combines concepts from medical anthropology, science and technology studies (STS), health sociology, cultural studies and linguistics into one a unified framework for analysing the co-production of health news. As such, this dissertation will at times ignore the strict disciplinary boundaries along which academic enquiry is historically organized to venture out from the field of journalism studies into health-specific theoretical accounts from a limited set of other academic disciplines. The interdisciplinarity of this dissertation can be seen as a natural continuation of the already highly interdisciplinary field of journalism studies (Zelizer, 2004).

1.4 Structure of the dissertation

After this brief introductory section which reviewed the driving forces behind this research and its discrete research questions, the theoretical enquiry will introduce the reader to the main conceptual building blocks that have guided this investigation. The theoretical enquiry consists of two complementary chapters. The first theoretical chapter, which is actually chapter two, begins with a brief historical contextualization of the literature on news sourcing, followed by a more elaborate discussion of how contemporary changes in journalism impact news sourcing today. Chapter three will complement the general sourcing literature from the previous chapter by introducing health-specific concepts from other academic disciplines. The theoretical enquiry is thus conceived as a funnel. It commences by reviewing the traditional literatures on news sourcing in general, mainly from a sociological perspective. Subsequently, it zooms in on the peculiarities of sourcing health news for which it borrows from other academic disciplines such as the sociology of health, STS, and medical anthropology. Both chapters thus differ in focus but are wholly complementary. In addition, a pronounced material perspective both on the practice of news sourcing (in general) and on health news (more specifically) is what unites chapters two and three. In fact, materiality is the glue that holds the whole dissertation together.

The empirical enquiry, which represents the most extensive component of this dissertation, consists of five chapters. It is organized differently than the previous theoretical section because the individual empirical studies from which this dissertation draws its results are published as individual, self-contained journal articles. Therefore, preceding the four studies, a general methodological chapter is

added to explain how these four individual studies, which are each characterized by different research questions and theoretical concepts, tie in with the bigger picture that is sketched out in the theoretical chapters. In brief, the first empirical study, which is chapter five, quantifies and compares the sources of health news across a range of different media types, i.e. television, radio, newspapers, magazines and online. Media types markedly differ, but overall biomedical experts, patients and academics seem to dominate the sources of health news. Chapters six and seven subsequently dig deeper into the sources of online health news by exploring hypertextuality. Similar to the previous chapter, biomedical experts are dominant sources, yet various types of online health news demonstrate significant differences in this respect. Finally chapter eight, which is the only chapter that employs a qualitative method (i.e. elite interviews), tries to understand the quantitative results from the previous chapters by talking to editors, but also by talking to health stakeholders who frequently appear as news sources. The interviews indeed confirm that biomedical experts are highly valued news sources, but that reverence for their authority is crumbling in favour of other sources such as citizens, patient organizations and other types of experts. Finally, the concluding ninth chapter weaves together the findings from the separate empirical studies and discusses them along the lines that were set out in the theoretical enquiry. A strong case is made for a material perspective on news making that surpasses an empirical focus on the digitalization of journalism.

THEORETICAL ENQUIRY

2 MEDIA: Sourcing the news

Since the long-standing tradition of literature on news sourcing, which is firmly entrenched within early normative press theory, has taken politics as its main empirical ground, this chapter explicitly aims to build a bridge between decades of sourcing research and the more recent body of scholarly enquiry into health news. This is necessary because, despite inevitable overlaps with other news genres, health news deflects from other beats in various ways. This is not to say that the theoretical relevance of traditional sourcing concepts such as “news access”, “gatekeeping”, “primary definition”, “balance” or “diversity” (to name but a few) should be thrown overboard, nor that journalism’s functional relationship with respect to the democratic process is irrelevant for health news; rather, what is advocated instead is that sourcing processes as they occur in a specialized beat such as health be looked at through a theoretical lens that is tailored to accommodate the complexities of that specific beat.

2.1 Historical contextualization of news sourcing research

This historical overview of news sourcing literature begins in the middle of the previous century. More specifically, it takes the aftermath of the Second World War as its starting point because this period constitutes an important turning point in the institutionalization of the social sciences to which the subdiscipline of communication sciences, and consequently also journalism, pertains (Zelizer, 2011). Although the study of journalism historically navigates between the humanities – where it is in the first place considered as a literary genre emerging in the beginning of the seventeenth century (Logan, Greenblatt, Lewalski & Eisaman Maus, 2006, pp. 1737-38) – and the social sciences – where the emphasis is put on economic, political and social dimensions of news – the study of journalism today takes a strong foothold within the social sciences (Zelizer, 2011). Arguably, this literature review could have commenced at a different point in time. Therefore, three arguments are set out to motivate this choice.

Firstly, the institutionalization of communication sciences (as a mature academic discipline) within the social sciences gains momentum after WWII (Steensen & Ahva, 2015). All over the world, scholars had witnessed the ravages of war. They had personally lived through the destructiveness of dictatorial press systems that spewed aggressive political propaganda to influence public opinion². Furthermore, as ideological tensions between the capitalist West and Soviet Russia were building and a nuclear threat was looming, there was a sense of urgency for the development of a social theory within a more or less institutionalized field that could help prevent such social disasters through

² For instance, Jürgen Habermas was sent to the front and was also member of the *Hitlerjugend* (Müller-Doohm, 2014/2016).

“social engineering” (Latour, 2005, p. 13). As the American sociologist, Louis Wirth (1948, p. 1), eloquently puts it in his seminal article “*Consensus and Mass Communication*”:

“The physical knowledge that threatens to destroy us is obviously not matched by social knowledge requisite to save civilization, and in so far as the future of mankind depends upon such knowledge, we must confess that we do not have enough of it to give”.

Secondly, the immediate period after WWII is also a turning point because, from that moment onwards, the terms “mass society” and “mass communication” are becoming evermore applicable to the organization of modern Western democracies (McQuail, 1983/2010, p. 55; Wirth, 1948). While older works by, for instance, Bernays (1923, 1928) or Lippmann (1922) had already emphasized the power of communication, media were now considered as crucial factors for the organization of social life (Lasswell, 1948; Wirth, 1948). Technological innovation and the economic prosperity of the golden sixties pushed mass media products to the central stage of both public life and academic enquiry. At this time media are no longer perceived as “instruments in the hands of other institutions” (Hjarvard, 2008, p. 132) but rather are studied as institutions “in their own right, viz., as forms of communication that shared certain constitutive characteristics and were of some consequence” (Hjarvard, 2008, p. 132). That media products have evolved to become products for the masses is important for gauging the impact that media portrayals of health have on society.

Thirdly, for Flemish newspapers and by extension newspapers in other parts of Western and Northern Europe, WWII also marked the beginning of a non-partisan, more neutral, style of news reporting (Hallin & Mancini, 2004; Van Croonenborch, 2018). Contrary to the USA, where principles of ‘objectivity’ were embraced already during the first decades of the 20th century (Schudson, 1978), Europe was much later to abandon its tradition of partisan reporting. This is an important development because the ideal of objectivity profoundly influences how news is sourced. Direct quotation and the attribution of information to specific sources was not an established practice before the 1950s (Carlson & Franklin, 2011; Schudson, 1978, p. 83). Today still, sourcing practices are conceived as decisive “strategic rituals” for legitimizing journalism as being able to provide a ‘neutral’ or ‘objective’ account of the social world (Tuchman, 1972). In other words, “for objective journalism, sources do more than provide information; epistemologically, they serve as an essential form of evidence” (Carlson, 2009, p. 527). Despite challenges to the notion of objectivity (e.g. Hellmueller, Poepsel & Vos, 2013; Mor & Reich, 2017), objectivity still (implicitly) guides many scholarly accounts of journalism as well as recent, popular, and frankly also quite heated, discussions of disinformation³ in

³ I will deliberately refrain from using the term “fake news” – a phenomenon which has recently reanimated the scholarly interest in mis- and disinformation – due to the inherent conceptual vagueness of the term “fake news”. Per definition, news ought to be real (rather than made up or “fake”) in order for it to be called news in the first place. Fake news is the most horrible *contradictio in terminis* a journalism scholar can imagine and it is

the current, so-called, “Post-Truth Age” (e.g. the latest Future of Journalism 2017 Conference: “*Journalism in a Post-Truth Age*”, held at Cardiff University).

2.1.1 The prehistory of journalism research

Since it starts in the 1950s, this literature review largely ‘skips’ journalism studies’ “prehistory” of normative theory (Hardt, 2002, p. 1 as cited in Wahl-Jorgensen & Hanitzsch, 2009) which was initiated in the early 19th century by German social theorists such as Karl Marx, Albert Schäffle, Karl Knies, Karl Bücher, Ferdinand Tönnies and Max Weber from the Frankfurt School (McQuail, 1983/2010, pp. 115-116). Building on the foundations of the Enlightenment, i.e. “rationality, certainty, consent, reasoned thought, order, objectivity, progress and universal values” (e.g. Thomas Carlyle (1905/ 1974) and Alexis de Tocqueville (1900) as explained in Zelizer, 2013, p. 463), early press theory⁴ saw freedom of expression, and consequently freedom of the press, as an essential ingredient for democratic forms of government (McQuail, 1983/2010, p. 169). Despite criticisms that “the historical linkage of journalism and democracy” is past its expiration date, many assumptions in journalism research today still trace back to the early days of journalism’s prehistory (Zelizer, 2013, p. 462). In news sourcing research, the vestiges of early press theories become apparent through a focus on diversity of opinions. These studies mostly focus on whether bottom-up, alternative or citizen sources counterweigh political and economic elites as dominant news sources (e.g. De Keyser & Raeymaeckers, 2012; Reich, 2015; Van Leuven, 2013) or they investigate whether political sources are represented equally or as a reflection of their actual popularity in order to assess the diversity of ideas circulating in the Habermasian public sphere (McQuail, 1992, pp. 141-181; Van Cuilenburg, 2007, pp. 25-54).

However, most ardently articulated by Barbie Zelizer (2004, 2011, 2013), a narrow functional definition of journalism in relation to democracy has shaped the field of journalism studies to favour those forms of journalism that comply with this political definition. This is an important observation because, due to this myopia, other forms of journalism such as lifestyle or health journalism, which are not necessarily commensurable with political-democratic definitions of journalism, become disregarded as instances of “lower quality” journalism⁵. This is problematic for two reasons. Firstly, such a value judgement is inevitably subjective and, in this case, also based on a flawed – or at least incomplete – conceptualization of what journalism is or should be. As a consequence of this “bad” reputation, more lifestyle-oriented journalisms were for a long time not even considered as worthy of

certainly not an oxymoron as claimed by Tandoc, Lim & Ling (2017) since there is nothing witty or “sharp” about the term “fake news”.

⁴ For a more detailed overview of the early period of journalism research see Hanno Hardt’s (1979) “*Social Theories of the Press*” or McQuail (1983/2010, pp. 175 - 177).

⁵ Determining the quality of journalism is notoriously difficult and inherently subjective. Consider these witty words from the German communication scholar and expert of “quality” in journalism, Stephan Ruß-Mohl (1992, p. 85): “Qualität im Journalismus definieren zu wollen, gleicht dem Versuch einen Pudding an die Wand zu nageln”.

study (Briggs & Hallin, 2016; Hanusch, 2012). For health news specifically, this situation is exacerbated by the common interpretation of health news as a linear transmission of medical objects from the context of biomedicine to a broad audience in a popularizing fashion (Briggs & Hallin, 2016). As a result, interest in health news until recently predominantly stemmed from the applied field of health communication which focuses on the accuracy of the presumed knowledge transmission rather than considering health news as a genuine journalistic enterprise in its own right. Secondly, the implicit assumption that health news is *apolitical* is untenable as health issues are increasingly drawn into the political arena⁶ (Briggs & Hallin, 2010).

2.1.2 The empirical turn in journalism research

Besides broader historical and social developments, or better yet, due to these developments, journalism scholarship shifts its gaze away from normative press theory towards actual news practices, of both journalists and audiences, for various (then-available) media formats. In their brief history of journalism studies research, Wahl-Jorgensen and Hanitzsch (2009, p. 5) aptly dub this shift “the empirical turn”. At this point, journalism research moves from predominantly normative considerations to more sophisticated empirical inquiries for researching the work of “news people” that employ various methods such as content analysis, surveys, experiments and even ethnography or so-called “newsroom studies” (Berelson, 1952; Stonebly, 2013; Wahl-Jorgensen & Hanitzsch, 2009, p. 6). Much research in these days of course also focused on media effects (McQuail, 1983/2010, pp. 455-461), but an important place is also reserved for the professionalization of journalism (e.g. McLeod & Hawley, 1964), news values (Galtung & Ruge, 1965) and agenda-setting (McCombs & Shaw, 1972). During this phase, investigations of news production and sourcing were very media-centric. Scholarship focused on what was going inside the newsroom, which was at the time still considered a key venue for news production. For example, journalistic gatekeeping routines (e.g. Breed, 1955; Gieber, 1956; White, 1950), news values (Galtung & Ruge, 1965) or reporters’ and sources’ roles (e.g. Gieber & Johnson, 1961) were investigated as practices going on within the newsroom. Thus, although media-centric, it is during this period that the seeds for systematic investigations of news sourcing routines are being planted.

2.1.3 The sociological turn in journalism research

Two decades later by the end of the 1970s, when both mass media technologies and scholarly interest in the newly emerging field of journalism studies were booming, attention grew for how *sources* (i.e. a factor from outside the newsroom) influenced the news. Around this time then, a shift from a media-centred towards a more source-centred perspective on news making occurred (Carlson & Franklin 2011; McNair, 1998; Zelizer, 2004). This means that the interest in journalistic sourcing routines was

⁶ Section 3.3.3 provides a more detailed account of this type of political “public sphere” health news.

extended to include accounts of sources' strategies to gain news access. The strategic employment of "information subsidies" (Gandy, 1980, 1982) and the orchestration of "pseudo-events" (Boorstin, 1962; Molotch & Lester, 1974) are particularly noteworthy in this respect. Described as "the sociological turn in journalism research" (Wahl-Jorgensen & Hanitzsch, 2009, p. 8), this strand of research which applied even more sophisticated and systematic research methods (i.e. mainly ethnography and content analysis) (Chibnall, 1977; Fishman, 1980; Gans, 1979; Schlesinger, 1978; Sigal, 1973; Tuchman, 1978; Tunstall, 1971) dug deeper into the journalist-source relationship which was characterized in three different ways (Carlson, 2009, p. 530). Firstly, convivially described by Gans (1979) as a "dance", the sourcing process can be seen as symbiotic in nature (point 2.1.3.1). However, alternatively it can also – less convivially – be considered as a "tug-of-war" (Gans, 1979). This metaphor characterizes a second model that conceives the journalist-source relationship as a fight that is consistently dominated by the same class of powerful elite sources. This model refers to Marxist views of news access (point 2.1.3.2). Thirdly, since the sociological turn paid more attention to sources' strategies to gain news access (e.g. Ericson, Baranek & Chan, 1989) (point 2.1.3.2.1), a third model emphasizes the constant competition among news sources to gain news access without prematurely assuming that powerful sources will automatically win the battle (point 2.1.3.3).

2.1.3.1 *The symbioticity of the journalist-source relationship*

As argued by Gans (1979, p. 116), "the relationship between sources and journalists resembles a dance, for sources seek access to journalists, and journalists seek access to sources". After all, a large network of sources with regular and trustworthy contacts for reliable information and original stories is a reporter's most valuable asset (Harcup, 2005; Randall, 2011). However, while it "takes two to tango", empirical evidence suggested that sources more frequently took the lead than did journalists (Gans, 1979, p. 116; Sigal, 1986). News sources' potential to influence the news may, however, vary throughout distinct phases of the news making process (Cook, 1998 as cited in Strömbäck & Nord, 2006, p. 149; Franklin, 2011; Reich, 2009). On the one hand, during the news discovery phase when journalists are looking for story ideas, sources primarily have agenda-setting and priming power (McCombs & Shaw, 1972; Scheufele & Tewkesbury, 2007). Considering that anything, from a random encounter on the street to a strategically commissioned information subsidy, could provide a potential story idea (Randall, 2011), some argue that it is usually the source who takes the upper hand during the news discovery phase (Reich, 2009; Strömbäck & Nord, 2006). During the news gathering phase, on the other hand, journalists regain control by gathering additional news sources that help frame the issue (Entman, 1993; Goffman, 1974). Concretely, this could mean that a pharmaceutical company's press release about a new research development in curing Alzheimer's disease triggers a news story about Alzheimer's but that the reporter will subsequently try to balance the original corporate source with views from other sources. Ultimately, this could even result in the not mentioning of the source providing the story idea. In other words, that the relationship between

journalists and their sources draws on a delicate equilibrium is clear; yet, it is not that simple to determine who has the upper hand and often this is case specific.

2.1.3.2 *The neo-Marxist model of news access and cultural dominance*

Not all sources are treated equally. Indeed, highly authoritative elite sources systematically gained greater media access than non-elite sources (Chibnall, 1977; Fishman, 1980; Gans, 1979; Sigal, 1973). Conversely, industry sources such as pharmaceutical companies are systematically denied access due to the inherent mistrust that journalists harbour towards commercial sources (Hinnant et al., 2013; Morell et al., 2015; Tanner et al., 2015; van Trigt et al., 1994; Wallington et al., 2010). Concealed under the veil of objectivity, journalists' sourcing routines which are also pragmatically structured around efficiency, unintentionally produce a bias that both reproduces and reinforces existing power structures in society (Gitlin, 1980; Hall, Critcher, Jefferson, Clarke & Roberts, 1978; McQuail, 1983/2010, p. 322).

That the routinization of newsgathering (and the professionalization of journalism in general) generates privileged news access for certain sources is both a consequence of, and a catalyst for, these elite sources to expand their symbolic as well as economic and/or political power. This mutually reinforcing dynamic sometimes leads to the gloomy conclusion that journalism's "bureaucratic affinity" with various public institutions reinforces existing power structures rather than autonomously challenging them (Fishman, 1980, p. 143). This is important because specific sources' structural over-access to the media agenda provides these sources with the symbolic power to become "primary definers" of reality (Hall et al., 1978). Taking "the disadvantaged position of non-official sources as a given rather than as established through empirical enquiry" (Manning, 2001, p. 42), it was assumed that the ability to define public understandings of the world was the privilege of official elite sources. These neo-Marxist views of news access and cultural dominance "identified the role of a dominant 'world view' or 'dominant culture' and structured hierarchical access as the key mechanisms accounting for the privileging of dominant ideas by the news media" (Cottle, 2000, p. 431). However, as mentioned before, because research gradually became more sensitive to the activities of news sources, Marxist models of news access and cultural dominance were replaced by more democratic models of news access.

2.1.3.2.1 Source strategies for news access: pseudo-events, information subsidies, and disease mongering

If sources also possess substantial financial and human resources, besides the symbolical autonomy they have accrued over the years, this will add to their ability to produce effective "information subsidies" (Gandy, 1980, 1982) or to organize successful "pseudo-events" (Boorstin, 1962; Molotch & Lester, 1974). The former refers to the provision of ready-to-use bits of information from sources to journalists (Gandy, 1980). Examples of information subsidies are press releases, including video news releases (VNR), press agency copy, press briefings, etc. The latter are staged events for attracting

media-attention and could therefore also be considered as marketing or publicity efforts. Press conferences, public speeches or televised political debates are model examples of pseudo-events.

In the context of health, a special type of pseudo-event exists that might require some further explanation. What is referred to here are disease awareness days (or weeks). This source strategy can be considered as a particular, health-specific, pseudo-event. Awareness campaigns are also often accompanied by a tsunami of information subsidies that journalists can use in the run-up of the pseudo-event. Orchestrated by the pharmaceutical industry, backed by patient advocacy organizations, and covered by reporters hungry for news, these campaigns draw attention to specific health issues. Sometimes this practice is negatively referred to as “the selling of sickness” or “disease mongering” because these campaigns’ discourses may convert healthy people with benign symptoms such as shyness into ill people who require medical treatment (Moynihan & Henry, 2006, p. 425). This process which is also more neutrally referred to as “medicalization” will be more elaborately discussed in point 3.1.1 (Conrad, 2005).

Regarding the beat system, health and medicine are well underway to become prominent news topics in the course of the 1970s and 1980s (Marchetti, 2010). Scientific breakthroughs often reach lay audiences via the press even before results are published in peer-reviewed academic journals in an effort to bypass the peer-review system (Williams, 1975). Consequently, health news too is dependent on the use of information subsidies (Gandy, 1980). In this respect, Silverman and Lee (1974, p. 77) observe that pharmaceutical companies’ direct forms of promotion are paralleled by indirect forms of “under the counter promotion” through the sponsoring of conferences, research, medical journals or disease awareness campaigns. So already during the 1970s, way before the digital era, pharmaceutical companies’ marketing efforts were well-established and diverse in range and target thus pushing more health news reporting (Silverman & Lee, 1974). However, while pharmaceutical companies most likely take the biscuit with reference to marketing expenditure, they are certainly not the only subsidizing news source in relation to health. Government health education efforts, civil society organizations and non-governmental pressure groups are also instrumental in the production of health news (Clarke et al., 2003; Gandy, 1980; Hallin et al., 2013; Marchetti, 2010; Thomas, 1977; Verhoeven, 2008).

2.1.3.3 *From a critical –Marxist to a radical-democratic model of news access*

During the 1980s and 1990s, the essentially Marxist conceptualization of news access reflecting the sociological “dominance paradigm” in which news was assumed to merely reproduce existing social structures was replaced by a new critical liberal model (McNair, 1998, p. 25). This new model, albeit still characterized by dominance of official elite sources (Cottle, 2003/2006), was more sensitive to competition among elite sources and to opportunities for non-elites to gain news access and thus to become primary definers (e.g. Bennett, 1990; Ericson et al., 1989; Hallin, 1986; Miller & Kitzinger, 1993; Schlesinger, 1990; Van Leuven et al., 2013). Interestingly, a considerable share of the empirical

efforts that did not revolve around political campaigning at this time focused on the promotional strategies of activists in the domains of health and science. Notably, the moral panic concerning HIV/AIDS in the 1980s and 1990s is a well-documented first step towards an increased research interest in health and science reporting from within the field of media sociology (Champagne & Marchetti, 2005; Lupton, 1994; Miller & Kitzinger, 1993; Miller, Kitzinger & Williams, 1998).

By the end of the 1990s up until today, this dominance paradigm continues to be challenged as a consequence of the perceived radical nature of technological influences on the news making process (e.g. Bruns, 2005; Gillmor, 2004; Vos & Heinderyckx, 2015). The advent of the Internet and of interactive Web 2.0 technologies provides new opportunities for ordinary citizens as well as for a whole gamut of previously marginalized news sources such as NGOs, quangos (i.e. organizations with a more hybrid character or ‘quasi-NGOs’) and grassroots initiatives to enter the news arena (e.g. Deacon, 2003/2006; De Keyser & Raeymaeckers, 2012; Reich, 2015; Van Leuven, 2013). Given the importance of these developments both on a theoretical and a practical level, the impact of technological innovation on news sourcing routines will be discussed separately in the next section.

2.2 Contemporary sourcing research: Technology takes centre stage

2.2.1 Four waves of digital journalism research

Since the turn of the new millennium, technology – which is often viewed as a catalyst for media change – is at the heart of journalism studies. Similar to the broader historical trends in journalism research (cf. point 2.1), theorizing online or digital journalism unfolds in a number of (partly overlapping) ‘waves’ that chronologically progress from normative perspectives towards more empirically grounded, quantitative, and subsequently also more qualitatively-oriented, constructivist investigations of digital journalism (Ahva & Steensen, 2017; De Maeyer, 2017; Domingo, 2006, pp. 137-139, 2008; Steensen & Ahva, 2015).

In brief, the first, *normative wave*, starting in the mid-1990s, is characterized by radically utopian predictions about the *revolutionary* potential of online journalism (e.g. Bardoel, 1996; Pavlik, 1997, 2000). According to an early literature review of online journalism by Kopper, Kolthoff and Czepek (2000), the first impetuses to empirically explore online journalism at this time were industry-driven and emerged from the question of how to monetize online news. Near the end of the millennium, a second, *empirical-descriptive wave* subsequently aimed to assess the extent to which the theorized potential of online journalism from the first wave was in fact realized (e.g. Barnhurst, 2002; Dimitrova, Connolly-Ahren, Williams, Kaid & Reid, 2003; Engebretsen, 2006; Kenney, Gorelik, & Mwangi, 2000; Oblak, 2005). The answer to this question was that technology did not produce the radical changes that were predicted (Ahva & Steensen, 2017; De Maeyer, 2017; Domingo, 2008). As a reaction then, a third, *constructivist wave* gradually developed. This third wave is reactive because, rather than theorizing the deterministically imagined outcomes or effects of digital news making, it

theorizes the process by which new technologies (as socially embedded phenomena) emerge and subsequently become habitual (or not) to news making (e.g. Boczkowski, 2004; Deuze, 2008a, Domingo, 2006; Paterson & Domingo, 2008). Interestingly, this shift from effects towards processes-oriented conceptualizations is also associated with a shift in the surrounding academic discourses from *revolution* towards *evolution* (Ahva & Steensen, 2017).

Finally, emerging from discussions of how journalism scholars' object of study is becoming increasingly hard to define, a fourth, *materialist wave* that “theorizes the field beyond the traditional institutions and understandings of journalism” comes into being (Steensen & Ahva, 2015, p. 1). The essence of this fourth wave is that it responds to how (social) media practices from actors ‘outside’ of the traditional institution of journalism impact the “networked news ecosystem” (Anderson, 2010), the “(health) information landscape” (Brossard, 2013; Clarke et al., 2003; Grosej, 2014; Holone, 2016) or the “hybrid media system” (Chadwick, 2013). In this respect, Ahva and Steensen (2017) argue that the discourses of *evolution* which surrounded the transition from the second *descriptive-empirical* wave to the third *constructivist* wave are currently being replaced by discourses of *deconstruction* (Ahva & Steensen, 2017). While overviews of digital journalism research usually conceptualize only three waves (e.g. Ahva & Steensen, 2017; De Maeyer, 2017; Domingo, 2008; Steensen & Ahva, 2015), the observation that the third wave is characterized by a transition from discourses of *evolution* towards discourses of *deconstruction* raises the question of whether the field of digital journalism studies is on the verge of embarking on a new ‘wave’.

In order to shed light on this issue, this dissertation will conceptualize the latest developments in digital journalism research as consisting of two turns. Following Witschge, Anderson, Domingo and Hermida (2018, p. 2), the first turn will be referred to as the “hybrid turn” (cf. point 2.2.3); whereas, the most recent turn, following Boczkowski (2015, p. 65), will be referred to as the “the material turn in the study of journalism” (cf. point 2.3). For clarity's sake, with reference to the previously described waves, both the material and the hybrid turn are components of the third constructivist wave. The question that this dissertation raises is whether the most recent offshoot of the constructivist wave, i.e. the material turn, should be treated as a new separate wave.

These two turns, which will be at the centre of the ensuing discussion, are being spotlighted separately because, besides calling for a fundamental “deconstruction” of journalism studies' traditional ontology and epistemology (Ahva & Steensen, 2017, p. 27; Boczkowski & Lievrouw, 2008; Lievrouw, 2014; Sjøvaag & Karlsson, 2017), they also call for a vital reconstruction (or reassembly) of journalism studies' onto-epistemological apparatus once it has been deconstructed (Anderson, 2013; Carlson & Lewis, 2015). In fact, one of the main objectives of this dissertation is to show that deconstruction represents only one side of the coin. Rather than fostering the idea that the solution for understanding contemporary journalism resides in a theory that ‘deconstructs’, this dissertation wants to add the notion of ‘reconstruction’ – or reassembly – as a second, indispensable step towards productive theorizations of journalism. Furthermore, albeit originating in the field of

digital journalism studies, the juxtaposition of deconstruction and reconstruction transcends the boundaries – if at all one assumes there are boundaries – of the subfield of digital journalism studies.

2.2.2 The trouble of a discipline trying to define its object of study

As attention in the field of media is increasingly shifting towards the impact of new digital technologies on journalism, digital journalism research focuses on new forms of journalism; the intense commercialization of the news industry; the softening of news and infotainment formats; new distribution platforms and aggregators which are poaching digital advertising revenue from traditional publishers; the proliferation of non-journalistic online information providers (e.g. government portals, corporate websites, patient advocacy groups, collaborative wikis, forums, etc.) which leads to a highly competitive media environment (Picard, 2014; Wahl-Jorgensen et al., 2016). In short, a quick glance at the recent literature seems to suggest that doing journalism is now more difficult than ever⁷. Contrary to the post-War golden decades of print journalism, legacy news media have ceased to “thrive” but instead are trying to “survive” (Villi & Hayashi, 2015). Given the rapid pace with which technological innovation is moving through various societal sectors such as media (but also health!), the complexity of interrelated economic factors, and the impact of social changes (Siles & Boczkowski, 2012), it is paramount to think about how these issues impact news sourcing.

Most importantly, it appears that the boundaries of professional journalism are blurring (Carlson & Lewis, 2015; Eldridge, 2017). Especially the question of who is entitled to call himself or herself a journalist has received much attention. The rise of terminology to describe interrelated phenomena referring to the permeability of traditional journalistic categories are myriad, e.g. user-generated content, citizen journalism, participatory journalism (Singer et al., 2011), ambient journalism⁸ (Hermida, 2010), network journalism⁹ (Heinrich, 2011), “gatewatching” or “produsage” (Bruns, 2005, 2008). All these terms suggest that professional journalism is in flux (Eldridge, 2017). Given the centrality of news sourcing for journalism, this perceived sense of flux has inescapable repercussions for theoretical accounts of news sourcing.

Firstly, Internet technologies have increased the possibility for traditional journalism to include citizen sources in the news (Gillmor, 2004). Secondly, it has also enabled citizens to become news makers themselves, thus bypassing traditional gates in the news production cycle (Bruns, 2005, 2008;

⁷ For a historical contextualization see Hamilton and Tworek (2017) who consider the heydays of newspaper journalism between the 1940s and 1980s as an anomaly in the longer history of news. Consequently, a great deal of the literature on changes in journalism nostalgically looks back to a golden era that will most likely never return. Hamilton and Tworek (2017) argue that such nostalgia holds little constructive potential for theorizing journalism in the future.

⁸ “Journalism that is produced, distributed, and received continuously via new communication technologies such as social networking, microblogging, and *Twitter*, becoming an almost invisible yet virtually ever-present factor in many people’s lives. Such journalism may originate from paid journalists and mainstream media organizations, user-generated content, or a mixture of the two” (Harcup, 2014, p. 13).

⁹ “A journalism characterized by new modes of connectivity, with strings of information floating through an interactive space in which journalistic outlets act as central information nodes” (Heinrich, 2011, p. 34).

Rosen, 2006). This is of course also true for other actors who already had privileged access to the news arena. Individual actors, businesses as well as organizations from other societal sectors are now better equipped to compete for news access, primary definition and agenda-setting power (at least in theory) due to the introduction of new and cheap digital communication channels (Clarke et al., 2003; Eysenbach, 2008). As a consequence of this *hybridization* of the media environment, legacy media organizations have lost their gatekeeping monopoly from the pre-Internet era (Barzilai-Nahon, 2008; Bozdag, 2013; Bro, 2017; Bro & Walberg, 2015; Heinderyckx, 2015; Pearson & Kosicki, 2016; Singer, 2014). It seems that the gatekeeping metaphor is nearing its expiration date. For the purpose of this literature review, however, let us not dwell upon the terminology, but on the underlying sense of hybridity.

2.2.3 The hybrid turn in journalism research

The “hybrid turn in journalism” (Witschge et al., 2018, p. 2), reflects how journalism scholars are increasingly frustrated by the incapacity of the ontological apparatus of traditional journalism theory to describe, understand and explain current trends in journalism. This incapacity can be attributed to journalism theory’s inscription, either implicitly or explicitly, in binary oppositions such as sender/receiver, objective/subjective, hard/soft, professional/amateur, commercial/non-commercial, fake/real, content/channel, offline/online, and so on. Hybridity then enters the stage in an effort to categorize the uncategorizable. However, as Witschge and colleagues (2018 p. 2) observe, it is important to remain critical of denoting “everything that is complex as hybrid” because doing so may hold “little explanatory value” for understanding journalism today, nor for predicting future trends.

2.2.3.1 The promise of hybridity

The face of the hybrid turn in journalism is, without a doubt, Andrew Chadwick (Giglietto, Ianelli, Rossi & Valeriani, 2016; Witschge et al., 2018). His research into political communication (Anstead & Chadwick, 2017; Chadwick, 2010, 2011, 2013), culminating the publication of the influential book, *The Hybrid Media System* (2013), represents a crucial advance in the study of political reporting and has implications for how the whole media ecosystem is conceptualized. Chadwick explicitly considers political communication cycles as “complex assemblages in which the logics – the technologies, genres, norms, behaviours, and organizational forms – of supposedly ‘new’ online media are hybridized with those of supposedly ‘old’ broadcast and newspaper media” (Chadwick, 2013, p. 63). He continues to say that “this hybridization process shapes power relations among actors and ultimately affects the flows and meanings of news” (Chadwick, 2013, p. 63). To support his argument, Chadwick reanimates the valuable notion of media logic in order to understand power relations among political elites, media actors and the public, all of whom are in “discrete interactions” creating “shared understandings and expectations about what constitutes publicly valued information and communication” (Chadwick, 2013, p. 19).

Contrary to analytical perspectives of media as conduits for information transmission (which are very prominent in the applied field of health communication), a media logic approach tries to understand the pervasiveness of media “as essential to the process of nearly all social life” by focusing on “the *interplay* between media and ongoing institutional activity” (Altheide & Snow, 1979, pp. 236-237, *italics mine*). It is important to understand that, already in its original formulation, media logic was not defined as “a one-way form in which media dictate definitions of reality” (Altheide & Snow, 1979, p. 236). It is precisely due to this sense of interactivity or mutual influence that the concept of media logic was able to inspire decades of subsequent research. Especially Chadwick’s hybrid theorizing, but also mediatization research (see point 3.2), builds heavily on the original formulation of media logic (e.g. Hjarvard, 2008). The assumption that in the contemporary media system several old and new media logics co-exist and that these logics are mutually structuring is what makes it hybrid. In Chadwick’s hybrid media system several “older media logics increasingly operate in relations of interdependence with newer media logics” (Chadwick, 2013, pp. 10-11). Ultimately this gives rise to new hybrid logics that provide insight into the power relations that are at the intersection of media and other life domains such as politics, health, religion, art, etc.

The greatest merit of the hybrid turn is that it successfully draws attention to the insufficiency of journalism theory’s current ontological apparatus (see also Witschge et al., 2018). The metaphysical presuppositions in traditional journalism theory are firmly rooted in essentially dualistic and *a priori* assumptions about the inner workings of the institution of journalism and its place within society. Hybridity, thus, becomes useful, not in its ability to describe, but in its ability to instrumentally trace instances where old and new media practices meet, create tensions, and ultimately culminate in new hybrid practices or logics (Chadwick, 2013). Following Chadwick, this dissertation will continue to use the analytical distinction between old or traditional media (i.e. linear television and radio broadcasts, and print journalism) and new media (i.e. online news websites, blogs, social media, etc.) throughout. Both empirically and theoretically the distinction between what has been traditionally considered ‘old’ versus ‘new’ media is still considered as a useful analytical construct, even if, on an empirical level, it is not always easy to place new forms of journalism in either one of these two categories.

However, notwithstanding the impact of hybridity in journalism studies, there is a growing body of literature from without this explicitly hybrid research tradition which analyses how professional journalists’ normatively entrenched sourcing practices are gradually adapting to, for example, the use of social media or search engines (e.g. Broersma & Graham, 2012, 2013; Coddington, 2014; Cui & Liu, 2017; Lecheler & Kruike-meier, 2016; Lasorsa, Lewis & Holton, 2012). Rather than using the terminology of hybridity these authors tend to consider the collapse of old and new media practices more moderately as processes of normalization. The focus on journalism production as a constant negotiation between ‘old’ and ‘new’ media logics, or even more fundamentally as a negotiation of the boundaries of journalism, is thus certainly not the exclusive terrain of those researchers who explicitly

characterize the current media system and concomitant media practices as hybrid. In regard to news sourcing, a notable case in point are whistle-blowers and leaks. This form of news sourcing can be seen either as a radically new practice giving rise to a completely new type of journalism or else just as another variation of news sourcing routines (e.g. Chadwick, 2013; Eldridge, 2017; Wahl-Jorgensen, 2014).

2.2.3.2 *The limits of hybridity*

Despite the proliferation of hybrid categories in journalism theory, there are those who object to using “hybridity” as a concept for conceiving the ontological complexity that the field is facing today.

First, the hybrid turn is problematic because it suggests “a historical ‘purity’ that never existed” (Witschge et al., 2018, p. 4). In one way or another, media environments have always been hybrid. Consequently, if media environments have always been hybrid, then hybridity is a conceptually empty metaphor that simultaneously denotes everything and nothing (Mast, Coesemans & Temmerman, 2017, p. 4). While the hybridity metaphor may wrongly conjure the idea that media environments were not hybrid before, this is not what the hybrid turn intends to say. In fact, Chadwick himself explicitly acknowledges that “all older media systems were once newer and all newer media eventually get older” implying that “media systems are always in the process of becoming” (Chadwick, 2013, p. 58). In hybridity’s first use context, viz. biology, it refers to a cyclical process by which the ‘hybrid’ offspring of two ‘pure’ strains will eventually become perceived as pure itself (Stross, 1999). This implies that “classificatory purity” is an “epistemological construction” because “every ‘pure’ form can also be conceived as hybrid by some measure or other” (Bauman & Briggs, 2003, p. 5). In other words, both champions and opponents of the hybrid turn, despite superficial disagreements about hybridity’s metaphorical associations, share the idea that “journalisms are never invented out of whole cloth; they are always patchworks of older traditions” (Nerone, 2013, p. 456).

If this is true, then where does the discrepancy between champions and opponents of hybridity originate? The answer lies in diverging conceptualizations of time, rather than of media *per se*. On one end of the spectrum, time (and therefore also media change) is considered as an ongoing linear process that runs parallel to the development of human communication. On the other end of the spectrum, the contemporary “hybrid” media environment marks the beginning of a wholly new era. The “historically unprecedented ways” (Chadwick, 2013, p. 59) in which audiences today have access to vast oceans of information starkly sets off current “media-rich late or high modern societies” from earlier historical periods (Lundby, 2014, p. 23). Hence, it seems that the apparent objection arises from conceptualizing time, rather than from conceptualizing media. Put simply, those who claim that hybridity wrongfully suggests historical purity consider the evolution of the media environment as a gradual linear process, while those who embrace the term hybridity consider the history of media environments as a process of exponential growth that is now reaching a crucial climax. Future criticisms of the hybrid turn could

benefit from integrating their argument within a more abstract theoretical consideration of time if they want to drive this point home.

A closely related second objection is that due to a strong focus on the most recent time period, the hybrid turn may lose track of the stabilizing processes that characterize journalism, i.e. the norms that govern it (Mitchelstein & Boczkowski, 2009; Peters & Broersma, 2018; Witschge et al., 2018). Such “historical neglect” produces “a kind of empirical and conceptual shallowness” because continuity is simply not noticed when research adopts a narrow time-frame (Mitchelstein & Boczkowski, 2009, p. 576). This argument echoes Barbie Zelizer’s strong and unapologetic argument in favour of an understanding of journalism change as a historically incremental process¹⁰, embedded within a scholarly discipline that provides stability and continuity, rather than as a radical break or transition, often accompanied by a nostalgia for a bygone, imagined and very-Anglo-centric golden era of newspaper journalism (Hamilton & Tworek, 2017; Zelizer, 2011, 2015, 2017, 2018). For example, normative considerations of journalism, albeit contingent upon continuous negotiation among various actors (and therefore thus subject to incremental change rather than radical change) have steered journalism in the past and will continue to do so in the future.

Finally, a third, more substantial area of contention relates to the use of binaries to organize theory. In accordance with Chadwick (2013), Witschge and colleagues (2018) argue that the best way to address the problems that journalism theory faces today is to step away from *a priori* dualistic ontologies instead adopting a more *experiential* approach that builds on the observation of specific situations to understand the complexity of contemporary networked modes of communication. By contrast, the hybrid turn’s answer to the shortcomings of binaries is not to replace them with an all new epistemology void of ontological binaries but instead to merge both ends of those binaries into a third hybrid category.

2.3 The material turn in journalism research

Leaving aside the ephemerality of “the X turn in journalism”-phrase for denoting specific trends¹¹, the discussion unspun here revolves around a more fundamental issue. Essentially, the arguments raised so far, each in their own way, either directly or indirectly, comment on the paradigmatic undercurrents of social theory building. Up until this point, the literature review was limited to a historical description of different waves of sourcing research, followed by a more elaborate discussion of the

¹⁰ For similar arguments warning journalism scholarship not to get carried away by “the winds of novelty” (Peters & Broersma, 2018, online first p. 8), see the recent special section of *Journalism*, “Conceptualizing change in journalism studies”, edited by Chris Peters and Matt Carlson.

¹¹ Coddington (2015), for example, uses the phrase “journalism’s ‘quantitative’ turn” to describe the emerging practice of data-journalism and other forms of computer-assisted reporting. In this sense, the term ‘turn’ is not used for a change in journalism scholarship but in the practice of journalism. Other well-known turns are “the linguistic turn” in Western philosophy (Rorty, 1992), or the successive “empirical”, “sociological” and “global-comparative” turns in the history of the field of journalism studies (Wahl-Jorgensen & Hanitzsch, 2009).

current highly digitized context of media research. It concluded by saying that not just the terminological repertory that journalism scholars have at their disposal falls short for theorizing journalism (hence the rise of hybridity), but also more fundamentally that the underlying ontological and epistemological ideologies are increasingly unfit for understanding contemporary journalism. The hybrid turn in journalism represents a preliminary attempt to come up with a viable alternative. Yet, as argued by Witschge and colleagues (2018) there are limits to calling everything that is too complex to categorize hybrid. Although at times this becomes a somewhat superficial discussion about the use of terminology, it does seem to divide the field of journalism studies into believers and non-believers, or into champions and opponents of hybridity as a productive theoretical concept.

Although explicitly stating not wanting to do so¹², Witschge and colleagues (2018) do propose an alternative approach. What they propose without being explicit about it is an experientialist approach that departs from how inconsistencies between practice and norms are experienced in day to day situations rather than from *a priori* assumptions about journalism (Witschge et al., 2018). However, while the experientialist alternative proposed by Witschge and colleagues (2018) is wholly in line both with what they demarcate as a separate “hybrid” turn (thus themselves contributing to the conceptual messiness they lament) and with that other “material” turn which will be discussed next (cf. point 2.3.1), Witschge and colleagues (2018) never render these similarities explicit. Yet, as is evident from the bibliography, inspiration was borrowed precisely from those disciplines such as STS, which have already fully embraced ‘materialism’ as the underlying philosophy. Notable STS authors such as Susan Leigh Star, Geoffrey Bowker and Bruno Latour are cited. On the contrary, Witschge and colleagues (2018) seem to avoid the term “materiality”, instead strangely opting to strengthen their argument by invoking a link with experientialism as presented in the seminal – but contested (cf. Madsen, 2016) – book, “*Metaphors We Live By*”, by George Lakoff and Mark Johnson (1980) within the field of cognitive linguistics. This is a strange move since understanding the reference to a charged concept from without journalism theory’s canonical body of literature requires a more elaborate contextualization than what Witschge and colleagues (2018) provide in their article. Especially since an appropriate alternative is readily available within their own field, viz. materiality.

Although the argument advanced by Witschge and colleagues (2018) is fraught with seeming contradictions and interdisciplinary tensions, the reason why this short article is dwelled upon here is precisely because it is fraught with tensions. It reveals a theoretical awkwardness that seems to reflect the early stages of a paradigm shift. While a renewed interest in materiality has already established itself as a broad interdisciplinary field of enquiry with significant implications for philosophy, STS, feminist studies and a range of other cultural theories (Sencindiver, 2017), a concrete articulation of a materialist perspective on the study of journalism is still very much in its infancy. Maybe the time has

¹² Maybe Witschge and colleagues (2018) are cautious in articulating a radically new approach because they do not want to antagonize their peers?

now come for the material turn in journalism to come to maturity? Journalism scholarship could assist in this process of maturation by identifying the core tenets of this new paradigm, going all the way back to an abstract metaphysical level, in order to move beyond the subfield of digital journalism studies and into the wide field of journalism studies that is not bound by an empirical focus on technology.

2.3.1 The promise of materiality: deactivating *a priori* categorizations

The philosophical undergird of the material turn in journalism is articulated in the paradigm of “new materialism” or “neo-materialism”. Originating in the second half of the 1990s with scholars such as Manuel DeLanda, Karen Barad, Rosi Braidotti and Gilles Deleuze, amongst others, this relatively new philosophical paradigm reanimates older realist and materialist philosophies as a reaction against dominant dualistic and transcendental (post)modernist thought (Dolphijn & van der Tuin, 2012; Sencindiver, 2017). The work of many contemporary social theorists, most notably Bruno Latour, whose work is also highly cited in the realm of digital journalism (e.g. Chadwick, 2013; De Maeyer & Le Cam, 2015; Domingo, Masip & Meijer, 2015; Lewis, 2012; Lievrouw, 2014; Primo & Zago, 2015), can be positioned within this theoretical meta-perspective. For instance, the idea that society is *assembled* through networks of interconnected actants was originally formulated by Deleuze and Guattari (1980/2005) but found wide acclaim within the sociology of science (see also DeLanda, 2006). That the project of those who consider technologies as socially embedded entities largely coincides with that of new materialism results from the latter’s primary objective which consists of “reworking and eventually breaking through” the dualism inherited from positivistic and humanistic world views made prominent by philosophers of modernity (Dolphijn & van der Tuin, 2012, p. 98).

New materialism proposes a cultural theory that radically rethinks the dualisms so central to our (post-)modern thinking and always starts its analysis from how these oppositions (between nature and culture, matter and mind, the human and the inhuman) are produced in action itself. It thus has a profound interest in the morphology of change and gives special attention to matter (materiality, processes of materialization) as it has been so much neglected by dualist thought. (Dolphijn & van der Tuin, 2012, p. 93)

The dualism in the quote above alludes to the famous opposition between nature and society but also occurs in the guise of other related oppositions, e.g. between mind and matter, body and soul, culture and nature, that are characteristic of (post)modernism (Dolphijn & van der Tuin, 2012). There are two reasons why new materialism reacts against this form of dualistic thought. A first source of frustration is the *transcendental* nature of these oppositions¹³. This implies that oppositions do not

¹³ The term *transcendental* is meant in the *Kantian* sense and should not be confused with that which is *transcendent*. That which is *transcendent* is beyond the faculties of human perception; whereas that which is *transcendental* is not beyond perception but instead acts as a requirement for perception. In other words, for

arise from thinking, hearing, seeing, touching or any other form of empirical enquiry. Instead they are *a priori* givens that function as requirements for empirical enquiry. In other words, this implies that modernity's fundamental binary ontology is mapped separately from its epistemology. Yet, as repeatedly illustrated throughout this literature review, the traditional *a priori* binaries presumably required to make sense of real-world events and objects do not inform or guide our understanding of them but rather seem to limit that very understanding. The invocation of new hybrid categories to solve this issue is only a half-measure because hybridity is still inscribed in the same underlying, problematic, dualist framework. Secondly, as a corollary of understanding the world through binary oppositions which are differentiated through negative relationality (i.e. A and B are opposites because A is what B is not, and vice versa) a strong sense of prioritization arises (Dolphijn & van der Tuin, 2012, pp. 115-136). Concretely, in this view "different-from almost necessarily translates into worth-less-than" (Braidotti 1994, p. 147 as cited in Dolphijn & van der Tuin, 2012, p. 127). This becomes visible in the asymmetry between mind and matter, male and female, rational and emotional, objective and subjective, et cetera (Dolphijn & van der Tuin, 2012). But also in the field of journalism studies, prioritization is reflected in oppositions such as professional/amateur, objective/subjective, journalist/source or hard news/soft news; to name but a few.

In the *monist* worldview of new materialism, by contrast, to differentiate entities (i.e. to distinguish ontological categories) one must *affirmatively* rely on linkages with other entities in the network. Consequently, new materialism harbours a monist world view because its ontology coincides with its epistemology. Returning to the initial (problematic) *Cartesian* dualism of (post)modernism, it becomes clear that new materialism is fundamentally original because it propagates a monist world view in which knowledge about the world is *immanent* (cf. Lat. '*im-manēre*' – Eng. 'to stay within') rather than *transcendental*. In other words, a monist world view thus solves the problem of prioritization prompted by the initial negative relationality in the *Cartesian* dualism because difference is structured *affirmatively* in relation to attributes of the network in which entities are assembled (Dolphijn & van der Tuin, 2012; Latour, 2005). As a consequence, the question of prioritization becomes irrelevant because differentiation is affirmative rather than negative. In other words, the materialist paradigm (as encountered in new materialism, Actor-Network-Theory, and in subsequent translations of this paradigm in other, less fundamental, academic disciplines such as journalism studies) does not discard oppositions all together, but instead argues that oppositions must be *immanent*, i.e. they must arise from an epistemological – or 'experiential' – project and not from an assumed *transcendental* ontology. It is important to remember this for interpreting the material turn in

Immanuel Kant (1724 – 1804) some kind of *transcendental* knowledge must exist as a necessary *a priori* condition for knowledge. Without it, the mind can never make sense of the complex world in which we live (Vermeersch & Braeckman, 2008, pp. 153-154).

journalism which seems to have forgotten all about processes of differentiation instead channelling all its efforts into processes of hybridization by which entities merge to become new hybrid entities.

If applied to journalism research, this admittedly very abstract theoretical argument offers fertile ground for repudiating the problematic ontological binaries of traditional journalism theory (Boczkowski & Siles, 2014). For instance, a material perspective prescribes that those who are interested in the production of political news need not only look at aspects of the newsroom or of the political journalist, but rather that they need to scrutinize particular situations, identify the relevant actors (both material and human) and examine the discrete actions of these actors in order to understand that particular instance of political reporting (Chadwick, 2013; Domingo et al., 2015; Witschge et al. 2018). As mentioned earlier, the journalist and the newsroom are losing their status as central entities in the news production process (cf. point 2.2.2). This ‘experiential’ procedure must be repeated until different types of actors and trends can be identified so that the collective gaze of journalism scholarship on its own object of study (which it struggles to define!) can widen. In other words, materiality urges researchers to think outside the box.

2.3.1.1 *Implications of materiality for sourcing health news*

Adopting a material approach for the study of health news then implies “transcending the medical/media opposition” in favour of a view on health news as co-produced through a heterogeneous network of actors (Hallin & Briggs, 2015). This viewpoint markedly differs from other sourcing studies in which news sourcing is construed as a delicate power struggle between the journalist and his/her sources (e.g. Davies, 2008; De Dobbelaer, Van Leuven & Raeymaeckers, 2017; O’Neill & O’Connor, 2008; Strömbäck & Nord, 2008). The implicit undertone in this research is that it is the journalist who must remain in charge by leading the tango thus implicitly inscribing itself in linear projections of news sourcing as a form of information transmission between the two ends of the journalist-source binary. This dissertation explicitly refutes dualistic conceptualization of news sourcing. Chapter seven, for instance, illustrates that approaching online health news without a fixed definition that is grounded in negative relationality immensely broadens the scope on online health news and those who produce it. This becomes clear when comparing the sample of health news websites from chapter six and chapter seven. Departing from the properties of search engines in chapter seven yields a different selection of health news websites than when predefined categorizations are used as is the case in chapter six. The most frequent search results for the term “health news” in chapter seven are directly produced by those actors who are traditionally defined as news sources (e.g. the pharmaceutical industry, patient advocacy organizations, sickness funds, etc.) rather than by those who are traditionally understood as producing news (e.g. media) (Carlson, 2009). Additionally, besides demonstrating that functional categorizations fail to capture online health news in its full complexity, chapter seven also proves that the objects of journalism such as hyperlinks and

search engines are agentively co-shaping the complete process of health news production, distribution and consumption.

The advantage of a materialist approach on health news is also visible on a more fundamental level. In the past, when theory was heavily constrained by a functionalist-political straightjacket, health news was deemed irrelevant as an object of study because, although health news is becoming increasingly politicized (Briggs & Hallin, 2010) (cf. point 3.3.3), it was assumed to lack an overt democratic purpose. Consequently, since no overt democratic purpose was attributed to health news, journalism studies had been disinterested in health news as an object of study for a long time (Briggs & Hallin, 2016; Hanusch, 2012). In other words, instead of concentrating on how instances of news production fit the functional definitions of its parts, it is more useful to examine ‘who is doing what’ in order to understand how meanings are negotiated, or how power relations are shaped.

2.3.1.1 *Implications of materiality for normativity*

That health stakeholders no longer exclusively function as news sources; and vice versa, that a functional definition of journalists as those who produce news ignores the nuances of news production in practice, also has implications for normativity. The material turn thus promises a thrust towards rethinking journalism’s normative, functionally-oriented, principles (Domingo et al., 2015; Peters & Broersma, 2018; Primo & Zago, 2015). Normativity in the material turn is dynamic. It can be included as an actor in socio-technological assemblages of news production to retrace how norms are deployed and by whom, as well as what the consequences of this deployment are for the complete network. Such an approach may be more fruitful than an approach in which *a priori* norms are assumed and which are then used as benchmarks for the empirical analysis. Materiality refutes the assumption that norms, which are the product of institutionalized collective practice (Hanitzsch, 2007), can explain precisely that collective practice. In the metaphysics of a material paradigm it is impossible that transcendental notions such as “media logic”, “power”, “journalistic culture”, or even “public sphere”, can function as valid instruments for measuring and explaining precisely those phenomena from which these transcendental notions are the collective result. It would be a classic case of circular reasoning if media logic – defined as the ensemble of “particular rules and resources that govern a particular domain” (Hjarvard, 2014, p. 204) – was invoked to explain precisely those rules and resources.

An interesting case in point that illustrates the dynamicity of norms in journalism is the hesitance of health journalists to be transparent about the use of industry sources. In chapter eight one editor-in-chief mentions that under particular circumstances a story may not mention that industry sources were used because this might diminish the legitimacy of the article in the eyes of the audience. Chapters five, six and seven confirm the relative absence of explicit references to industry sources. Consequently, the normative ideal of source transparency is being contested as it is deployed in the network. Paradoxically, in this particular instance of health reporting, the ideal to be transparent in order to secure the confidence of the audience translates into doing exactly the opposite, i.e.

concealing the reliance on certain sources. By retracing how normativity is contested among the different actors within the network relativist perspectives of normativity are stimulated. Furthermore, by encouraging research to include normative considerations in the networks, they are discouraged to use norms as benchmarks for the empirical analysis (Domingo et al., 2015). Departing from the assumption that health journalists must be transparent about their use of sources could cause research to inadvertently condemn those journalists who think it is a good idea to conceal the identity of industry sources in specific cases (e.g. Wormer & Anhäuser, 2014). This could have adverse effects on the relationship between professional journalism and journalism scholarship. Ultimately, this argument also supports the claim that researchers themselves are part of the networks that they investigate (Domingo et al., 2015).

2.3.2 The limits of materiality

Nevertheless, despite the conceptual elegance of networks as (digital) news ecologies and the enticing non-functionalist methodological approach, Couldry (2008) warns that scholars must not get carried away by materiality's grand philosophical narrative. In what follows some of the common criticisms of conceiving the social and social action as instances of networked co-production will be addressed. The attentive reader will notice that each of these criticisms is characterized by the same underlying problem, i.e. that materialist theories like ANT (or the material turn in journalism) often appear asymmetrical because they privilege the concrete actualizations of socio-technical assemblages over the virtual realities in which they subsist (Farías, 2014). An example of such a virtual (as opposed to actual) reality is symbolical meaning. While, as argued above, virtual 'things' such as norms or ideas are not per definition excluded from the analysis, this is what frequently happens in practice. The empirical focus of the material turn in journalism on the impact of technology has undoubtedly contributed to this sense of asymmetry.

Firstly, materiality is often accused of being apolitical because it purposefully flattens out relations among actors (Latour, 2005, p. 251). Paradoxically, material paradigms are at the same time also criticized for extending politics everywhere even in science, since both science and politics emerge from intricate networks of co-production (Latour, 2005, p. 251). Thus, to counter this argument it would simply suffice to say that these two positions logically cancel each other out. However, since power and politics are so important within the social sciences, the issue merits more attention. That materiality flattens power inequalities reflects an analytical procedure that tries to understand how power relations emerge from networks. It does not reflect reality itself. What a networked approach offers is a dynamic understanding of how power is performed by not conceiving power as a static *abstractum* that some actors just happen to have (Latour, 2005, p. 251). Bruno Latour (2005), for instance, finds it utterly strange that social theory would invoke an abstract concept such as power to explain power itself. Instead, what material paradigms offer is a conceptual and methodological

framework for how power relations emerge, until they eventually become naturalized so that power appears as something that some actors just have.

Nevertheless, despite this convincing rhetoric, it must be noted that the critique that material paradigms are apolitical is not entirely unfounded. As a reaction against traditional social theory's "mysterious" attribution of power dynamics from a disconnected aggregate of individual data points to a *sui generis* society (Latour, 2011, p. 802), the material turn has been so preoccupied with the concrete conduits and nodes along which power is distributed, that it has neglected *time* in its conceptualization of networks (Couldry, 2008). Especially, once the networks "come to be established as normal, regular, and, gradually, as natural" (Couldry, 2008, p. 100), materiality provides a limited framework for understanding how networks (and the power dynamics contained within) will evolve over time and eventually become destabilized again. Neither Bruno Latour's ANT, nor the materiality of journalism is completely silent on this issue, yet the relative lack of interest in long-term consequences, according to Couldry (2008), obscures the social consequences of power inequalities that determine an actor's ability to become the "primary definer" of reality (Hall et al., 1978). Of course, the relative newness of the material turn within journalism studies may also explain the absence of longitudinal empirical research. In sum, that material paradigms are often perceived as apolitical is in the first place a consequence of an emphasis on the spatiality of the emerging networks thus obscuring the temporalities of networks (Couldry, 2008).

Secondly, ANT, as the most well-known exponent of materiality in the social sciences, is criticized for being a-cultural because it ignores symbolical meanings (Couldry, 2008). While neither the notion of actor nor network precludes the occurrence symbolical meaning or less tangible 'things' such as norms or ideals, ANT is still accused of lacking the "conceptual repertoires capable of accounting for virtual processes such as sense-making" (Farías, 2014, p. 26). In ANT, meanings, just like physical objects or subjects, are shaped and challenged through networks of interconnected actors. As certain actors become regular and necessary passing points, they accrue power. This also means that certain meanings, once they are formed, may accrue enough momentum to become the dominant meaning in a particular context. So far so good. But then Couldry (2008) wonders what happens to symbolical meanings that emerge from an established network when they are reinterpreted and enter into another network?

Again, similar to the previous criticism, this boils down to a neglect of time also in the cultural realm. Farías (2014, p. 28) elucidates this as follows: "*ANT rightly does not conceive time as an independent and objective physical coordinate or as transcendental schema shaping subjective perceptions of the world, but rather as an effect from the way entities materially relate to each other*". In order to overcome this problem, the actualization of networks must be conceptualized as co-existing with past virtual networks, and not as a succession of unrelated emerging, and subsequently disappearing, networks (Farías, 2014).

While ANT does not preclude the possibility that established networks may change over time, it provides no framework for long-term implications of the symbolical meanings that are inevitably contained within the networks that ANT (re)assembles. This lacuna is problematic since meanings are absolutely central to a theory of media (Couldry, 2008, p. 102). Once established, meanings can contribute to an understanding not of *how* but of *why* an actor is connected to the network (Couldry, 2008, p. 102). To illustrate this argument, Couldry (2008, p. 103), drawing on Gomert & Heinonen's (1999) essay on drug use and musical preference, claims that "the passion the music lover feels for music cannot be reduced to a simple relation between the actor (the music lover) and the object (the musical text)". For this dissertation the material turn's cultural and symbolical neglect will be counterbalanced by integrating a material perspective *on journalism and media* with a material perspective *on discourse* (cf. point 3.3) (Briggs, 2005, 2007, 2011b; Briggs & Hallin, 2016).

2.3.3 The materiality of hyperlinking

As mentioned earlier, news sourcing is understood as the emergence of material or social linkages between journalists, citizens, doctors, scientific research, politicians, court reports, other journalists, and so on. To conceive of the sourcing process in a networked space, rather than in a linear fashion provides an open window for understanding how other actants which might traditionally not immediately be considered as relevant influence news sourcing. Search engines, for example, are frequently used conduits or channels for both journalists and citizens to find news sources (Lee, Hoti, Hughes & Emmerton, 2014; Lecheler & Kruikemeier, 2016; Newman, Fletcher, Levy, & Nielsen, 2016; Ørmen, 2016; Powell, Inglis, Ronnie & Large, 2011). While some may argue that algorithms or search engines do not pertain to the domain of journalism studies, this dissertation begs to differ. Similarly, besides a focus on news sources in the traditional sense, this dissertation also aims to expand that traditional understanding of news sourcing by incorporating the rather technical but nevertheless socially embedded practice of hyperlinking.

In what follows the discussion of materiality will zoom in on a special kind of online sourcing that is materialized through the use of hyperlinks. Since hyperlinks are not traditionally viewed as a materialization of news sourcing practices (for a notable exception see De Maeyer, 2013), the ensuing section will commence with a brief historical contextualization of the notion of 'hypertext' (cf. 2.3.3.1). Subsequently, an overview of the functions of hyperlinks in journalism will be provided (cf. 2.3.3.2). Finally, the study of hyperlinks as transparent news sourcing mechanisms *par excellence* will be discussed within a framework of materiality (cf. 2.3.3.3).

2.3.3.1 The origins of hypertext

Hyperlinks are those little (usually blue) clickable words in online texts. They just seem to be there, yet they cleverly and instantly guide surfers through cyberspace. In fact, hypertextuality constitutes the very foundation on which the Internet is built (Berners-Lee, Cailliau, Groff & Pollermann, 1992). Without it, the Internet simply cannot exist. It might therefore seem surprising that hypertext, at least

the idea of it, actually precedes the invention of the Internet in 1969 (Kleinrock, n.d.). The first hyperlink connecting items on a page, for which technically no Internet connection is needed, was created in 1966 by Douglas Engelbart (Turow, 2008) but the term ‘hypertextuality’ had already been coined in 1965 by sociologist, philosopher and information technologist, Ted Nelson (Nelson, 1965). Calling it project *Xanadu*¹⁴, Nelson wanted to create a hypertext information system allowing users to hop from one text to the next through a user-friendly graphic user interface (GUI) (Nelson, 1965; Wolf, 1995).

Long before the invention of the Internet (let alone the commercialization of Internet browsers in the 1990s), the time was ripe to conceptualize a revolutionary electronic publishing system in which literary allusions and references to other texts or works of art could be effortlessly retraced. Remember that, back in the 1960s, people were forced to physically visit one (or several) libraries to explore intertextual references¹⁵ (Wolf, 1995). For Nelson, project *Xanadu* could save the world because everyone in the world would have access to every possible bit of information. Since most disasters stem from misinformation and poor communication (i.e. WWI and WWII are still fresh in everyone’s memory), Nelson believed in *Xanadu*’s public service potential. In other words, hypertext – contrary to *Tweets*, *Facebook*-likes, selfies, or other new digital objects – represents a revolution in how information is organized in societies (i.e. as networks!), hence the great importance attached to hypertext in this dissertation.

To understand the spirit of the time in which Nelson came up with his idea, it is helpful to look at parallel developments in the field of literature which is the field *par excellence* to talk about inter-, en- and hypertextuality. When Nelson is devising the notion of hypertext, modern and postmodern authors such as Marcel Proust (*À la recherche du temps perdu*¹⁶, 1908) or James Joyce (*Ulysses*, 1922) had already begun experimenting with the classical linear narrative by breaking it down into smaller bits which were pulled out of context or reintegrated within new contexts¹⁷. The most striking offline parallel to electronic hypertext is the novel, *Rayuela*¹⁸ (1963), by the Argentinian writer, Julio Cortázar. In English, “rayuela” translates as “hopscotch”. Hopscotch refers to a children’s game whereby a rock is thrown onto a gridded figure. The goal is to jump (on one leg) to where the stone has landed and then back again. The title of the novel reflects Cortázar’s organization of the chapters. The story is written so that readers can read the chapters linearly from start to end or in any random fashion of their liking. As such, one could consider *Rayuela* the ultimate hypertext novel *avant la*

¹⁴ His project, however, was never realized. In computer sciences such dreamt software is referred to as “vapo(u)rware”. Cf. OED online, <http://www.oed.com/view/Entry/243248?redirectedFrom=vapourware#eid>

¹⁵ Imagine the horror! Yours truly, born in 1991, cannot even begin to imagine how one would write a doctoral dissertation without the Internet or digital text processing software.

¹⁶ “In search of lost time”

¹⁷ Hence, similar to what some journalism scholars are doing today (cf. point 2.2.1), the the fields of literature and linguistics were already deconstructing the strict linearity of historically inherited narrative forms a century earlier.

¹⁸ It was translated and published in English three years later in 1966.

lettre. Thus, it is clear that Nelson's invention was not a singular idea that arose from an intellectual void. Additionally, this also illustrates that computer sciences, the social sciences and the humanities have much more affinities than one might think. Although project *Xanadu* was never realized, Nelson did sow the seeds for the Internet as we know it today.

2.3.3.2 *The affordances of hypertext in online journalism*

The term 'affordance' refers to what objects allow the user to do (Lievrouw, 2014, p. 48). They simultaneously embody permissions but also promises (Latour & Venn, 2002 as cited in Lievrouw, 2014, p. 48). On the one hand, technological affordances are permissive because if a news website's underlying content management system (CMS) does not include a field for URLs or if it does not support HTML in its text fields, then the technology does not *permit* the user to insert hyperlinks. On the other hand, this implies that affordances are also *promises* because not all affordances require employment. Put simply, even if the CMS would allow the inclusion of hyperlinks, users can still choose not to insert links. The initial optimism in the first wave of online journalism research is in the first place attributable to an emphasis on the promises (cf. point 2.2.1). Scholarship was mainly concerned with the affordances of online news that promised interactivity, multimodality and hypertextuality (Deuze, 2003; Domingo, 2006; Steensen, 2011; Paulussen, 2004). These three cornerstones of the Web were considered as carrying a great potential to improve online journalism compared to its older print and broadcast siblings. Hyperlinks, being so central to the existence of the Internet, embody each of these three key features. Hyperlinks are interactive elements because they provide a means for news consumers to interact with the news content. They boost multimodality because hyperlinks can be used to embed images, audio or video content in running text. Regarding the third feature, it is clear that hyperlinks hold the monopoly on hypertextuality.

2.3.3.2.1 Four functions of hypertext in journalism

Nevertheless, despite the usefulness of these general concepts for conceptualizing online journalism (i.e. interactivity, multimodality and hypertextuality), they have been complemented with affordances (or functions) specifically for examining hyperlinks. In this dissertation three, arguably four, functions are recognized (De Maeyer, 2012). Firstly, hyperlinks can increase *transparency* by linking out to original sources (De Maeyer, 2012; Napoli, 2008; Ryfe, Mensing & Kelley, 2016). Secondly, depending on the type of content referred to, hyperlinks potentially enhance *credibility* (Borah, 2014; Chung, Nam & Stefanone, 2012; Johnson & Wiedenbeck, 2009; Karlsson, Clerwall & Nord, 2014; Mor & Reich, 2017). Thirdly, hyperlinks *can add extra layers of content* since online publishing is not constrained by limitations of space¹⁹ (Jarvis, 2007; Lokman, 2008; Pearson & Kosicki, 2016).

¹⁹ One could object that online publishing is limited by the availability of server space. Especially since news organizations have recently begun experimenting with video which requires much more bits and bytes than text and image (PwC, Global Entertainment & Media Outlook 2018-2022), news organizations increasingly rent

Fourthly, hyperlinks potentially enhance news *diversity* by including hyperlinks to opposing viewpoints (De Maeyer, 2012; Gans, 2011; Steensen, 2011).

Since the third and fourth function are closely connected, one could argue to synthesize them into three instead of four functions of hypertext. For example, De Maeyer (2012, 2013, 2015), whose work on hypertextuality greatly influences the current study, consistently identifies three functions: transparency, credibility and diversity. However, for health news, it seems sensible to preserve the distinction between adding content and adding diversity. The controversy over a potential causal connection between vaccinations and autism – for which there is absolutely no scientific evidence²⁰ – is a concrete example against diversity in health news. There is consensus within the scientific community that vaccines are safe (WHO, 2018). Nevertheless, the anti-vaccination movement still very much influences popular discourses on vaccination safety (Suk, Lopalco & Pastore Celentano, 2015). Consequently, media portrayals of this so-called “controversy”, in an undoubtedly well-intended effort to produce balanced news stories (Kovach & Rosenstiel, 2001; Randall, 2011), often include representatives of this debunked anti-vaccination movement. The inclusion of opposing views may enhance a kind of democratic plurality, but for specific health issues doing so can cause uncertainty and doubt (e.g. Gallagher, 2015, May 31; Wennemars, 2018, June 26). Ultimately, such “falsely balanced” news stories could harm patients’ health if this urges them to doubt the scientifically proven safety of vaccinations (Dixon & Clarke, 2012; Holton et al., 2012).

2.3.3.2.2 Hyperlinks’ commercial function

Finally, hyperlinks also fulfil a (fifth) commercial function. However, as demonstrated in chapter seven, this commercial aspect is not directly in the service of journalism but rather in the service of the business that commonly pays for journalism’s production, i.e. online advertising. Particularly, the use of *internal hyperlinks*, which redirect users to content within the contours of the same website, or of *pseudo-external hyperlinks*, which redirect users to content from organizationally affiliated websites, is in the first place part of a business strategy rather than of an editorial policy. Since *pseudo-external* links often link out to thematically unrelated content (cf. chapter 7), the incentive to use internal hyperlinks is clearly commercial (De Maeyer, 2012; Karlsson, Clerwall & Örnebring, 2015; Ryfe et al., 2016). The more clicks or views a page gets, the more profit the advertisements on these pages generate. Hence, in an effort to protect advertising revenue, but also not to lead visitors to the

additional storing space on third-party servers (Libert & Nielsen, 2018, p. 3). Amazon Web Services (AWS) is market leader in the area of cloud computing.

²⁰ There is no scientific evidence that supports claims about a causal link between the MMR-vaccine and the heightened occurrence of autism in early childhood. The article by Wakefield et al. (1998), published in the prestigious medical journal *The Lancet*, that suggested such a causal link did exist, was eventually retracted because data and method were insufficient and flawed: conclusions were speculative, the study was ‘uncontrolled’ (i.e. there was no ‘control’ group) and the sample size was limited (n=12). Additionally, it turned out that the lead author of the paper, Andrew Wakefield, had failed to disclose that he had received financial compensation from the lawyers of a group of parents who were suing the vaccine manufacturers (Boyce, 2007).

competition, news websites' linking practices are often overtly protectionist even if news websites are exclusively supported through reader contributions (Chang, Southwell, Lee & Hong, 2011; Coddington, 2012; De Maeyer, 2013; De Maeyer & Holton, 2016; Dimitrova et al., 2003; Himmelboim, 2010; Karlsson et al., 2015; Larsson, 2013; Oblak, 2005; Quandt, 2008; Tremayne, 2005).

Although alternative, net-native, news websites and blogs are more progressive in this respect (Coddington, 2012, 2014; Cui & Liu, 2017; Paulussen & D'heer, 2013; Sjøvaag, Moe & Stavelin, 2012; Straub-Cook, 2017), there is a general tendency of news websites not to link out to competing news websites (e.g. chapters 6 and 7). Nevertheless, despite the potential loss of visitors and advertising revenue, hyperlinks to the competition as a social gesture may result in greater visibility provided that the competition decides to link back (De Maeyer, 2015; Ryfe et al., 2016). Research on this issue is scarce, but there is one study showing that external hyperlinks are beneficial for a websites' online visibility in the long run (Weber, 2012). This issue definitely merits further attention because hyperlinks constitute a cheap and possibly very beneficial marketing tool which, if used strategically, can enhance both the content and the visibility of the news website.

Online visibility is a crucial factor for success. The frenemy relation of many news outlets with *Facebook* and *Google* clearly demonstrates this. Thus, net-native news websites, especially those which rely entirely on reader contributions instead of advertising – a model which is becoming more popular for new investigative journalism initiatives – could enhance their visibility by establishing hyperlink connections with other mainstream news brands that have greater online visibility. It has been shown that, within hyperlinked news ecologies, the legacy brands occupy central, highly visible positions which resemble offline ownership structures (Sjøvaag, Stavelin, Karlsson & Kammer, 2018). The risk of losing audience members by linking out to competing news websites is real, especially if news outlets assume their audiences have the attention span of a goldfish. For the more high-end elitist investigative reporting, such an assumption is possibly false. Nevertheless, hyperlinks to the competition remain scarce or inexistent. Another possible objection to linking out to competing websites may be to avoid situations in which users run into paywalls thus becoming frustrated with the original websites' linking behaviour. Yet, it seems plausible that news consumers, especially those interested in hard investigative reporting have several subscriptions and therefore may find it pleasant that, if they encounter a textual reference to another news brand, they can check that reference with an easy and simple click. Depending on the type of online news website, it could be worthwhile to explore this option with readers (e.g. in a simple mailing ask whether they would appreciate such hyperlinks) and if possible with competing news websites. After all, since reciprocal hyperlinks embody potential win-win situations, should this so-called frenemy relationship be limited to 'Big Tech'?

The same reasoning could be applied to the use of hyperlinks in the fight against online mis- and disinformation. Transparency is the first overarching principle proposed by the European Commission's expert group on online disinformation (EC, 2018, p. 6). Transparency of the sourcing

process is by far the most important function of hyperlinks for journalism. By making available the raw source materials that were used to compose the news article, news consumers are given the freedom to independently evaluate the news content (Kovach & Rosenstiel, 2001; Turow, 2014). Therefore, rather than wanting to design a whole new system for achieving greater online transparency, it could be worthwhile for governments, non-profits and media organizations alike – in their effort to combat mis- and disinformation – to go back to the basics and to use hyperlinks as intended by Nelson, as a vast, gratis and widely available digital referencing system. While new technical solutions such as algorithms relying on provenance data to check an online document’s origin (Buneman, Khanna & Tan, 2001; imec, n.d.) or other new types of commercial (or open-source) software for storing and sharing raw source data (Mor & Reich, 2017) may boost journalism’s transparency and as such help to combat mis- and disinformation, it seems more sensible to employ the already existing mechanisms to the fullest before investing hard-earned money and precious time in something entirely new. The hyperlink should not be taken for granted.

2.3.3.3 *Hyperlinks materialize the news sourcing process*

Most importantly, hyperlinks show sources. Nevertheless, while both journalists and journalism educators consider this the hyperlink’s most important function (De Maeyer, 2012; De Maeyer & Holton, 2016), the use of hyperlinks is not a standardized practice (De Maeyer, 2017). Firstly, not all sources are necessarily linked to (i.e. the *promise* is not fulfilled), nor are all sources ‘linkable’ (i.e. analogue sources such as interviews or informal contacts do not *permit* hyperlinking). Secondly, news organizations’ uptake of hyperlinking is varied, depending on the socialization of the news medium within the institution of journalism and its associated professional standards (Coddington, 2014; Cui & Liu, 2017). It is possible to predict with relative certainty that net-native news websites, blogs or other forms of citizen journalism will demonstrate more progressive hyperlinking behaviour (Coddington, 2012, 2014; Paulussen & D’heer, 2013). Yet, when considered longitudinally, hyperlinking patterns may be unpredictable and erratic in some cases (Karlsson et al., 2015; Tremayne, 2005).

2.3.3.3.1 Bridging the gap between news production and news consumption

Despite the absence of a standard hyperlinking practice, hyperlinks provide a wealth of information, not just with regards to what happens online but regarding specific offline social and economic dimensions of journalism. In point 2.3.3.2.2 the economic connection between digital advertising and organizational affiliation as well as social dimensions of hyperlinks as kind of digital “hat-tip” have been discussed (De Maeyer, 2015). However, the most important social dimension of hyperlinks is its imagined relation with news consumers (De Maeyer, 2017). Because hyperlinks are interactive elements that can be considered as resulting from an intentional communicative act on the part of the journalist directed at the news consumer (Ryfe et al., 2016), a focus on hyperlinks bridges the gap between news production and news consumption. The news consumer then can engage in a non-linear process of way-finding along the path that was set out by the journalist (Pearson & Kosicki, 2016).

The importance of this way-finding process for health is clear. Since health is a highly personal issue and since levels of health literacy differ among news consumers, hyperlinks provide an interactive opportunity for digital pathways towards more specialized, or conversely, more easy to understand additional information on the topic at hand. For example, a news item covering the potential reimbursement of a new pharmaceutical product could link out to the original clinical trial in which the effectiveness and safety of the new drug was tested, it could link to the formal report of the European Medicine Agency (EMA) which is responsible for granting market permission or to the reports from the meetings concerning the actual reimbursement by the social health insurance in the local or national context. Furthermore, the mere presence of hyperlinks promises news audiences a pathway for engaging further with the content. In other words, the likelihood that people will seek further information increases when hyperlinks are present (Borah, 2014; Van Slooten, Friedman & Tanner, 2013). From a health educational perspective, this is a particularly interesting research avenue.

Nevertheless, besides studies focusing on the relation between hyperlinks and news credibility, not much is known about news consumers' appreciation or actual use of hyperlinks (Karlsson & Clerwall, 2018; Karlsson et al., 2014). Apart from their imagined or promised potential, hyperlinks may also negatively contribute to the news experience. As argued by Nicholas Carr (2010), the presence of hyperlinks increases the neurological burden on news consumers thus hindering the overall comprehension of the news item as a whole. To understand how hypertext affects the online reading experience is an important question for journalism in general (Doherty, 2014), but it is particularly relevant for health because the Internet is a frequently used source for health information, for professionals as well as for lay people (Van Slooten et al., 2013). News media with their vast archives of content combined with the business objective of attaining large online visibility (i.e. through SEO, presence on social networks, etc.) occupy a prominent position within the broad online health information landscape (Groselj, 2014; Holone, 2016). Therefore, news organizations could take the lead in guiding news consumers to other content thus acting as curators of content rather than as producers of content (Bakker, 2012; Bardoel & Deuze, 2001; Cui & Liu, 2017).

2.3.3.3.2 Bridging the gap between content and technology

A second advantage of an empirical focus on hyperlinks is the fact that hyperlinks effectively bridge the gap between the symbolic meaning (i.e. the content) of a news text and the physical carrier (i.e. channel or conduit) of that content. The underlying HTML-code that generates those (blue) clickable words or phrases becomes an integral part of the news text. As illustrated in chapters six and seven, hyperlinks need not necessarily be studied in terms of their technical characteristics as is common in much research (not just in the first normative and second empirical wave, cf. point 2.2.1). Examples of such technical characteristics are the hyperlinks' top-level domain (e.g. ".be", ".com", ".gov", ".edu", ".nl", ".fr", ".es") (TLD), position on the webpage, integration into the text or link destination

(external or internal). Instead, hyperlinks are also an important means to add content. Consequently, hyperlinks contribute to the symbolic meaning of a news text. As argued by Gillespie (2014, p. 1):

News, in the study of media, has been typically construed as paragraphs on a page, rather than the page itself; the headlines are examined, but not the newsboys who shout them, the teletypes that clatter them out, or the code that now renders them into clickable hyperlinks.

In the wake of the material turn scholarly interest in the objects of journalism such as hyperlinks has increased. Even though technological determinism has a somewhat bad reputation, it has long been clear that the technology via which content is transmitted also shapes the meaning of that content (e.g. McLuhan, 1964). For health news specifically, this stresses the importance of investigating which type of content hyperlinks add to the original news item. Obviously this dissertation adheres to Sigal's truism that "news is what sources say it is" (1986, p. 15) in its motivation to focus on news sourcing to understand broader dynamics of health news, yet Sigal's anthropocentric vision on the sourcing process should not limit this dissertation's ability to grasp the dynamics of broader socio-technological news networks, hence the major importance attributed here to the occurrence hyperlinks.

3 HEALTH: Understanding health news

3.1 (Bio)medicalization: the expansion of health

In health sociology, “medicalization” refers to the socio-cultural process that consists of “defining a problem in medical terms, using medical language to describe a problem, adopting a medical framework to understand a problem, or using a medical intervention to ‘treat’ it” (Conrad, 1992, p. 211). The bulk of medicalization research focuses on how previously nonmedical problems become defined in medical terms. Examples include natural stages of life such as pregnancy (Christiaens & van Teijlingen, 2009), menopause (Bell, 1987), andropause (Gavilán & Iriberry, 2014) or ageing (Ebrahim, 2002; Mykytyn, 2006); as well as the medicalization of “deviant behaviour” such as hyperkinesia and ADHD (Conrad, 1975, p. 12; Wright, 2013) or homosexuality (Greenberg, 1988; Hansen, 1989); and even social problems such as poverty or unemployment (Holmqvist, 2009).

3.1.1 Media as secondary agents of medicalization

Since the process of medicalization is a “definitional issue” in the broad sense (Conrad, 1992, p. 211), medicalization is not confined to the institution of medicine (or to the sociology of health). On the contrary, the drivers of medicalization and the contexts in which processes of medicalization can occur are myriad (Conrad, 1992, 2005; Halfmann, 2012). Given the centrality of media in the everyday social lives of people in most modern (Western) democracies (Briggs & Hallin, 2016; Hjarvard, 2008; Lundby, 2014), media embody an important context for medicalization. Although it would be a crude simplification to consider medicalization as a straightforward, linear process of cause and effect, various authors do mention media as one of the possible drivers of (de)medicalization (Bauer, 1998; Conrad 2005; Gavilán & Iriberry, 2014; Halfmann, 2012; Williams et al., 2008; Zwier, 2009). Even if it is not entirely clear how and whether media can actually *cause* medicalization, media are often crucially involved in this complex process (e.g. Bauer, 1998; Hallin et al., 2013; Williams et al., 2008). More specifically, media are identified as secondary drivers of medicalization (Williams et al. 2008). Among the primary “engines” of medicalization are: the medical profession, private and social insurers, biotechnology and pharmaceutical industries, the food industry, and ultimately also consumers (Conrad, 2005; Zwier, 2009).

That media reflect medicalization becomes evident when scrutinizing the dataset used in the empirical part of this dissertation. The sample of the content analysis reported in chapter five contained several news items in which typically nonmedical problems were described in medical terms (see also Stroobant et al., 2016). For instance, on February 18 of 2015, the popular daily *Het Laatste Nieuws*, covers the story of a thirteen-year-old girl who is committed to a youth institution where she will be psychologically analysed to examine why she refuses to see her father (Masschelin & Van Bastelaere, 2015, February 18) (cf. Figure 3-1 below). It goes on to say that experts need to

find out whether the girl suffers from ‘Parental Alienation Syndrome’ (PAS). In the clinical picture of PAS the child adamantly refuses contact with one of the parents. On the orders of the juvenile court, the child is committed to a youth institution because, if the PAS is caused by the mother (who is accused of blackening the father’s character), then this will have legal implications for the divorce

Figure 3-1. Medicalization of PAS



procedure of the parents. While the exact dynamics of how and why such a social issue becomes defined in medical terms is not clear from the article alone, it does suggest that news stories can contribute to or maintain processes of medicalization (Gavilán & Iriberry, 2014; Williams et al., 2008). It is important to consider medicalization in order to define this dissertation’s object of study, i.e. health news. Rather than departing from a fixed set of topics, issues or diseases, this dissertation departs from open-ended sampling procedures that also include stories about medicalized health issues such as the aforementioned story about PAS (see also point 4.2.1.1).

Another example of medicalization that is closer to home involves the frequent use of new, digital, hand-held media devices such as tablets and smartphones, which is increasingly characterized as the symptom of an addiction

known in Belgium as “digibesity” (imec, n.d.). In response to the results of the yearly *Digimeter* – a large-scale survey of media use in Flanders – in 2016, the Flemish quality newspaper, *De Standaard*, (in an interview with the leading researcher of the *Digimeter*) coins the term “digibesity” (e.g. Deckmyn, 2016, January 14; Van Dyck, 2016, January 16). Interestingly, while initially the neologism ‘digibesity’ popped up only in a singular interview (i.e. Deckmyn, 2016), ‘digibesity’ has now become a regularly returning news topic. Even imec itself, i.e. the research group conducting the study together with Ghent University, now uses the term in its own press releases (e.g. imec, 2018, January 24). According to Gavilán and Iriberry (2014), media can contribute to the medicalization of problems by provoking sentiments of fear. The portrayal of media use as a medical problem is one strategy to achieve this. There are striking parallels between medicalization and disease-mongering (discussed in point 2.1.3.2.1). The difference between the two is that the former is a value neutral term, while the

latter is mostly used negatively and often with reference to media unwittingly passing through implicit messages from the health industry (Moynihan, Heath & Henry, 2002). On a final note, it is also worth mentioning that *imec* itself is tapping in on the media logic of sensationalism when issuing its own press releases by using the term “digibesity”. In this case the medicalized portrayal of media use seems to originate with the source rather than with the journalist. A detailed analysis of such peculiar “(bio)mediatized” practices will be discussed more elaborately in chapter eight.

However, it should be noted that the assumed media logic by which exaggeration is expected to boost coverage does not necessarily correspond to the reality of news making. If exaggerations occur in press releases, then similar exaggerations in subsequent media coverage are almost inevitable (Schat et al., 2018; Sumner et al., 2016; Woloshin et al., 2009). That is true. An investigation of the association between exaggeration in scientific press releases and subsequent news stories in the Netherlands concludes that there is indeed a strong correlation between the occurrence of exaggerated claims in the press release and the associated news stories (Schat et al., 2018). Yet, regarding the odds of uptake for exaggerated press releases, results are mixed. Whereas Sumner and colleagues (2016) find no significant differences between the uptake of exaggerated and non-exaggerated press releases, Schat and colleagues (2018) do observe a slight increase of the odds that an exaggerated press release will get covered compared to non-exaggerated press releases. Since inaccurate and exaggerated health coverage is a main source of frustration for many health professionals (who often unjustly point the blame at journalists), this issue certainly merits further attention.

3.1.2 From medicalization to biomedicalization

3.1.2.1 A brief chronology of medicalization (Christiaens and van Teijlingen, 2009)

The process of social change entailed by “medicalization” is not uniform. Instead it has been developed and conceptualized according to four different but partly overlapping, chronological stages or “meanings” (Christiaens & van Teijlingen, 2009, p. 2). In the first phase, starting in the late 17th century in the aftermath of the Enlightenment up until the 1950s (Bell & Figert, 2012), medicalization, as a value-neutral term, referred to the institutionalization and professionalization of medicine and healthcare which was occurring in many modern Western democracies (Freidson, 1970; Foucault, 1963). Soon after, attention for how the institution of medicine expanded its influence over other (nonmedical) life domains grew (e.g. Conrad, 1975). At that time, contributions of authors such as Ivan Illich (1976) shifted the attention to the negative, iatrogenic consequences of medicalization on a clinical (e.g. medical errors and complications), a social (e.g. depoliticization of medical problems and attribution of responsibility to the individual) and structural level (e.g. the increasing dependence on medicine) (Branckaerts, 1982). The final, fourth stage implies a transition from ‘illness’ to ‘health (optimization)’ and is accompanied by an intense commodification and diversification of the healthcare field (Clarke et al., 2003). It is precisely in this final stage of *biomedicalization* that media begin to occupy a more central position in the broad field of health and biomedicine.

There are two important reasons why biomedicalization matters for the production of health news. Firstly, the political and economic restructuring of the field of medicine upon its entry into the twenty-first century implies a diversification and expansion of those who produce and distribute knowledge about health (Clarke et al., 2003). This restructuring substantially impacts the sourcing of health news. Secondly, not only the number and type of possible health news sources has expanded but also the channels of communication have diversified. Most importantly, a “democratization” (Clarke et al., 2003) or “disintermediation” (Eysenbach, 2008, p. 5) of the production, distribution and consumption of health information has occurred. This means that patients now have direct access both to personal (e.g. the Belgian government’s newly implemented personal online health portal “*My Health Viewer*”) and general health information (which is widely available online) without the intervention of a middleman (Eysenbach, 2008).

Naturally, given the pervasiveness of the social transformations entailed by the processes (bio)medicalization, there are more defining characteristics for biomedicalization than the ones mentioned here. In other words, (bio)medicalization’s far-reaching social consequences are not only relevant in a discussion of health news, yet for obvious reasons, the ensuing section will exclusively focus on what matters most for the production of health news.

3.1.2.2 *Biomedicalization: An expansion of health news sources*

As discussed in chapter two (in point 2.1.3), the sociology of journalism characterizes the relationship between a journalist and his/her sources as one of mutual dependency, a “tug-of-war”, a dance or a duel (Carlson, 2009; Gans, 1979, p. 81). Considering this symbioticity in tandem with the presumed “bureaucratic affinity” between journalistic beats and their corresponding societal sectors (Fishman 1980, p. 143), it almost logically follows that a restructuring of the societal sector covered by a particular beat would also impact the structure and routines of the beat covering this sector. In other words, it seems warranted to assume that if the broad field of health and medicine changes, then changes in how health news is produced are likely to follow.

Longitudinal analyses of news sources in health journalism (which are scarce, but valuable) seem to support this assumption (e.g. Hallin et al., 2013; Verhoeven, 2008). For example, Verhoeven (2008) who has analysed 40 years’ worth of non-fiction medical television programmes in the Netherlands finds that the speaking time allotted to experts significantly decreases in favour of speaking time allotted to laypersons, i.e. from 54.7% in 1976 to 21.9% in 2000. On the contrary, speaking time for laypersons, a new type of source formerly altogether absent from medical television programmes, reached 46.1% by the year 2000. As reported in chapter five, the current situation in Flanders is similar; citizen sources (18.6%) are the second most frequently cited type of health news source after academics (20.6%). In total, Verhoeven (2008, p. 466) distinguishes more than seventeen different types of sources which he divides into three broader groups, i.e. experts (including ‘pure’ scientists, other experts and medical doctors), journalists, and laypersons. Interestingly, Verhoeven (2008) also

observes a meaningful change in the camera-angle used for portraying doctor-patient interaction. In the 1960s and 70s, the doctor, who functioned as a kind of anchor-man, is filmed frontally as if the viewer is sitting where the patient should sit (with the patient absent from the picture). By the 2000s, patients enter the picture and viewers witness the interaction as if they are looking along over the shoulder of the patient (Verhoeven, 2008). Hallin and colleagues (2013), who scrutinize U.S. print newspaper health journalism during roughly the same period as Verhoeven (2008), observe similar tendencies, i.e. a diversification of news sources to include more business people, lay sources and civil society organizations and an overall less prominent role for physicians. In sum, besides the addition of new types of sources, journalists are no longer hidden behind the camera but rather take up an active, mediating role. Consequently, both the assumption that the number of health stakeholders is expanding (Clarke et al., 2003) and that the engines of medicalization are shifting to include media as secondary agents (Conrad, 2005; Halfmann, 2012) seem to be borne out if news content is taken as a proxy for measuring such transformations.

Empirical evidence thus indeed indicates that the number and type of news sources in health news is on the rise. But how can these changes be explained? That medicalization becomes messy in the postmodern age is mostly attributed to neo-liberalism, i.e. the penetration of market logics into the field of health and medicine which dictates a new type of self-governmentality (Bell & Figert, 2012; Briggs & Hallin, 2007; Clarke et al., 2003; Devisch & Vanheule, 2015; Rose, 1996). Under the impulse of unconstrained, neo-liberal market developments (especially in the U.S.), the healthcare industry has accrued enormous economic power (Briggs & Hallin, 2007; Clarke et al., 2003). In Belgium too, the biopharmaceutical sector accounts for 10.6% of the total Belgian export market and directly employs approximately 36,000 people (pharma.be, 2017). Hence, Belgium is sometimes also referred to as “pharma valley” by analogy with Silicon Valley (pharma.be, 2017). These economic developments entailed in the process of biomedicalization are characterized by an increased commodification of healthcare services and health products whereby laypersons (who are often healthy and therefore strictly not patients) are increasingly addressed as consumers by a broad range of new health stakeholders who are pushing the traditional physician and the “medical authority” they represent of their figurative pedestal (Briggs & Hallin, 2007; Clarke et al., 2003). Even with a pan-European ban on direct-to-consumer advertising (DTCA) for prescription drugs in place (Magrini & Font, 2007), media – in a broad sense – constitute important channels for these new stakeholders to market products or services (Briggs & Hallin, 2016; Clarke et al., 2003; Conrad, 2005; Dumit, 2012; Howell, 2007).

Advertising agencies, for instance, are increasingly involved in the early stages of drug development to help develop clinical trials and to recruit patients (Bell & Figert, 2012; Briggs & Hallin, 2016; Dumit, 2012). The commercial branding of a drug thus already commences before the initial molecule or chemical substance is proven to be efficient and before it has received market-approval from the appropriate authority (Briggs & Hallin, 2016, pp. 139-164). This practice is related

to the process of “pharmaceuticalization”, a process “by which social, behavioural and bodily conditions are treated or deemed to be in need of treatment/intervention with pharmaceuticals by doctors/patients or both” (Abraham 2010a, p. 290 as cited in Bell & Figert, 2012, pp. 775-776). While of course not every aspect of the (complex and sometimes contradictory) transformations that are subsumed under the headers of (bio)medicalization and pharmaceuticalization can be attributed to economic factors, it is clear that market logics, consumerism and commodification play an important role. Nevertheless, increased consumerism, the waning power of medical authority and individual self-government can also give rise to instances of demedicalization or resistance to biomedicalization and pharmaceuticalization (Abraham, 2010; Halfmann, 2012). This is visible, for instance, in the growing group of so-called “anti-vaxxers”. Increasingly, highly educated parents, decide not to vaccinate their children out fear for vaccines’ presumed adverse side-effects (Windey, 2018, July 18).

For the production of health news, these transformations in health and (bio)medicine thus in the first place impact sourcing routines. Put differently, the interpenetration of large multinational companies within biomedical research in academia and the industry’s close relationship with governments as well as with the institution of medicine itself (e.g. doctors and hospitals), produces a complex reality for health journalists who must find their way to trustworthy, uncompromised and unbiased sources (Hinnant et al., 2013; Morell et al., 2015; Tanner et al., 2015; van Trigt et al., 1994; Wallington et al., 2010). Thus, not only is the notion of expertise becoming more diverse to include, besides traditional medical doctors and physicians, also biomedical researchers, activists, experts in other domains than health (e.g. social scientists, behavioural psychologists, (TV) chefs, etc.), and even laypersons, it is also becoming increasingly difficult to assess the value (or trustworthiness) of these experts (Albæk, 2011; Boyce, 2006; Christensen, 2016; Clarke et al., 2003; Declercq, 2018; Jallinoja, Jauho & Mäkelä, 2016; Saikkonen, 2017).

In short, the first consequence of biomedicalization for the production of health news is that ‘the doctor’ is no longer the standard source of ‘expertise’ to turn to. Additionally, since industry, state and academia are increasingly involved in a web of complex – and sometimes even contradictory – political and financial relations, it becomes hard for journalists, (A) to keep track of the complexity of the healthcare system in order to find the ‘right’ expert; (B) to identify conflicts of interest.

3.1.2.3 *Biomedicalization: the transformation of information and the production and distribution of health knowledge*

The difficulties mentioned above with regard to locating relevant sources of expertise and to successfully identifying conflicts of interest are magnified by the digitalization of information and communication technologies. This is true, not just for journalists who are increasingly relying on *Google* and digital channels during news production (e.g. *Googling* for sources) (Lecheler & Kruikemeier, 2016; Veloudaki et al., 2014), but also for patients and healthcare professionals (Higgins, Sixsmith, Barry & Domegan, 2011; Lee et al., 2014; Macias, Lee & Cunningham, 2017).

While in the first stages of medicalization the doctor functioned as the main broker of information, patients are now encouraged (for example by pharmaceutical companies, patient advocacy groups, insurers, etc.) to independently seek out health information and to subsequently use that information in order to boost or maintain their personal health (Clarke et al., 2003, pp. 177-180; Sundar, Rice, Kim & Sciamanna, 2011). With the advent of the Internet, the commercialization of Web browsers and the development of interactive Web 2.0 applications that can be used on increasingly small, portable devices, health information has become abundant (Lee et al., 2014; McDaid & Park, 2010; Powell et al., 2011). That information is now more democratically available boosts patient empowerment, for instance, in rural areas or poorer communities where access to professional medical care is less evident (e.g. Geana et al., 2012; Ramirez, Estrada & Ruiz, 2017).

Yet, the question remains whether the positive – empowering – effects can outweigh the negative consequences of this so-called “democratization” (Clarke et al., 2003, p. 177). Firstly, digital skills, health and digital media literacy as well as the financial capacity to buy and manage digital devices are not distributed evenly among the population (Geana et al., 2012; Ramirez, Estrada & Ruiz, 2017; Rios, 2013; Wu & Li, 2016). This implies that some people may be more effective (online) health information seekers than others (Berkman et al., 2011). Secondly, since the sources of those who produce and distribute health information have expanded, a co-optation of expertise has occurred which makes it more difficult to locate reliable health information (Clarke et al., 2003; Higgins et al., 2011; Lee et al., 2014; Macias et al., 2017). When relying on “doctor *Google*” – an increasingly popular practice – the challenge resides in evaluating the trustworthiness, completeness and overall reliability of this tsunami of information (Feuz, 2014; Haim, Arendt & Scherr, 2017; Lynch et al., 2017). Hence, given the ambiguity of the term “democratization” as used by Clarke and colleagues (2003) in the original biomedicalization thesis, the term “disintermediation” is preferred as a more neutral alternative (Eysenbach, 2008, p. 5). This term is commonly (but not exclusively) used in the contexts of health and science communication and denotes the direct access of consumers to medical and scientific information without the mediation of an expert to give guidance (Eysenbach, 2008).

In journalism, the disappearance of the middleman is mostly referred to metaphorically in terms of ‘gatekeeping’. As a theory of news selection, gatekeeping originally referred to the power of journalists to control the flow of raw information that eventually becomes transformed into news (Shoemaker, Vos & Reese, 2009). Parallel to health and science communication, the middleman or gatekeeper is increasingly being bypassed in news environments too. Consequently, the gatekeeping metaphor is under pressure and, hence, subject to constant revision and modification, both in the specific context of health information (Clarke et al., 2003; Eysenbach, 2008; Sundar et al., 2011) as well as in the more general contexts of media and news production which are not related exclusively to health topics (Barzilai-Nahon, 2008; Bro & Wallberg, 2015; Bruns, 2005; Heinrich, 2011; Pearson & Kosicki, 2016; Shoemaker, Vos & Reese, 2009; Vos & Heinderyckx, 2015). In both contexts, the factors influencing the selection of news or the availability of health information have expanded.

Notably, in both domains lay people or audiences are fulfilling more active roles (see, Briggs & Hallin (2007) in the context of health; Bruns (2005) in the context of news).

Facilitated by innovations in the communication technologies that characterize the contemporary hybrid media system, audiences both directly and indirectly influence the flow of information (Netzer, Tenenboim-Weinblatt & Shifman, 2014). Firstly, audiences can influence news content through comments and replies in direct interaction with journalists, health professionals or other stakeholders via interactive Web applications (Clarke et al., 2003; Eysenbach, 2008; Hermida, 2011). Secondly, indirectly in the form of large aggregates of user-data (or “Big Data”) that are fed to proprietary algorithmic structures on digital platforms (e.g. *Google*, *Amazon*, social networks, etc.) which considerably steer the flow of information and influence the decisions of news makers via ‘audience metrics programmes’ such as *Chartbeat* or *Google Analytics*, audiences thus ultimately also influence the news offer (Bozdag, 2013; Lanier, 2018; Tandoc, 2015). Some have argued that this leads to the emergence of filter bubbles (Holone, 2016; Pariser, 2011). However, that relying on automated algorithmic recommendation systems would lead to a homogenization of the content on offer, for instance, in terms of political leanings, is increasingly being refuted (e.g. Möller, Trilling, Helberger & van Es, 2018).

Finally it is worth mentioning that hyperlinks function as crucial navigational cues in this new information environment. Firstly, hyperlinks feature as ingredients for calculating the authority of websites. This authority metric, in turn, is then used to rank websites in recommendation systems (e.g. search engines, social media feeds, news websites’ homepages, etc.) (Webster, 2008). Secondly, as a consequence of the increased prominence of such recommendation systems in online journalism (Bakker, 2012, 2014; Bardoel & Deuze, 2001), hyperlinks function as indispensable navigational tools (Cui & Liu, 2017). Essentially, as elaborately discussed in point 2.3.3, hyperlinks are the cornerstone of the Internet infrastructure. That this is true becomes visible once again when scrutinizing the disintermediation of journalism as well as that of science and health communication.

3.2 Biomediatization: the expansion of media

In this section, the sociological literature on (bio)medicalization discussed above will be integrated within a framework of mediatization (Driessens et al., 2017; Lundby, 2014). If the socio-cultural process of *(bio)medicalization* captures how the field of (bio)medicine expands over other fields (including media), then *mediatization* refers to the socio-cultural expansion of media over other fields (including health) (Briggs, 2011a; Couldry & Hepp, 2013; Hjarvard, 2008). Thus, (bio)medicalization and mediatization describe parallel processes of socio-cultural expansion, albeit in different domains. While, (bio)medicalization research explores the socio-cultural expansion of health and medicine; mediatization research explores how media logics penetrate and ultimately ‘colonize’ other fields (Altheide & Snow, 1979; Hjarvard, 2008; Strömbäck, 2008).

Essentially, mediatization research seeks to answer the question of how media and associated media logics affect culture and society (Hjarvard, 2008). Changes in political communication are probably among the most extensively studied topics within the tradition of mediatization (e.g. Mazzoleni & Schulz, 1999; Strömbäck & Esser, 2014). Yet, other contexts such as religion (e.g. Hjarvard & Lövheim, 2012), fashion (e.g. Kristensen & Christensen, 2017), law (e.g. Peleg & Bogoch, 2014), even the automobile industry (e.g. Miller, 2017), and of course health (Briggs, 2011a) and health news (Bauer, 1998; Briggs & Hallin, 2016; Declercq, 2018; Verhoeven, 2008), are increasingly studied against a backdrop of mediatization. Given the scope of this dissertation, the ensuing discussion will focus exclusively on the interpenetration of media logics in the field of health; and, vice versa, on the cultural influence of medicine on media. A framework of “biomediatization” will be proposed to make sense of how the processes of medicalization, biomedicalization, and mediatization influence the production of health news, and ultimately also society (Briggs, 2011a; Briggs & Hallin, 2016).

“Biomediatization”, as coined by medical anthropologist, Charles Briggs, and media scholar, Daniel Hallin, provides a useful framework for understanding the complex dynamics that are involved in the production of health news. Aided, of course, by a number of other researchers, more than a decade’s worth of empirical investigations into the relationship between health and media form the foundation on which the framework of biomediatization is developed (e.g. Briggs, 2011a; Briggs & Hallin, 2007, 2010; Hallin & Briggs, 2015; Hallin et al., 2013). Their joint efforts, having applied both qualitative (ethnography and interviews) and quantitative (content analysis) methods in dispersed geographical sites scattered across the U.S. and Latin America (Venezuela and Cuba to be precise), culminate in the comprehensive book, *Making Health Public* (2016). Given the pioneering work these researchers have conducted on the production of health news, their work will feature prominently in this section. Nevertheless, whenever possible, this discussion of the relatively new concept of “biomediatization” will be connected to the work of other scholars who have investigated health news but who do not explicitly employ the concept of biomediatization. To elucidate the central argument of *Making Health Public* (2016), this section will discuss the three most important subcomponents of biomediatization: “co-production”, “boundary-work” and “biocommunicability”.

A first core component is the view that health stories are not neutral linear translations of information originally produced by the biomedical field. Rather than conceptualizing biomedicine and journalism as two separate epistemological projects whereby the former is mapped as superior to journalism in its ability to produce reliable information about health, Hallin and Briggs (2015) draw attention to the fact that health news is socially, politically and culturally infused with meanings that are ‘co-produced’ between a variety of stakeholders from different fields, most notably health and media (cf. point 3.1.2.2). In other words, the notion of co-production in biomediatization calls attention to how media, health and politics are deeply intertwined (Briggs & Hallin, 2016, p. 13). Inspired by the interdisciplinary academic field of STS (Hackett, Amsterdamska, Lynch & Wajcman,

2008), co-production refers to how scientific facts are the hybrid product of intersections between science and society (Jasanoff, 2004; Latour & Woolgar, 1979; Latour, 1991/1993).

Secondly and equally central to the core argument of biomediatization is the notion of “boundary-work” (Briggs & Hallin, 2016, p. 4). Again, Briggs and Hallin borrow from the field of STS, more specifically from the work of Thomas Gieryn (1983) who coins the term “boundary-work” to refer to practices and discourses that aim to set apart science from non-science. In this sense, boundary-work involves the construal of figurative boundaries between two knowledge-producing domains such as science and journalism (Briggs & Hallin, 2016; Gieryn, 1983). On a purely theoretical level, a theory of biomediatization that analyses how the parallel expansion of both media and biomedicine generate hybrid biomedical objects that circulate in newspapers, on television, *Twitter*, pamphlets and advertisements would become problematic if the two entities that come together to produce hybrids were not different in the first place, hence the importance of boundary-work to complement instances of co-production.

Thirdly, discourse is performative (Bauman & Briggs, 2003). This final point bears relevance that transgresses the ideas of biomediatization, co-production and boundary-work. The performativity of discourse in the context of health – referred to as “biocommunicability” – was developed independently (and prior to biomediatization) by Charles Briggs in the field of medical anthropology (Briggs, 2005, 2011b). Interestingly, this concept of “biocommunicability” hinges on the same metaphysical presuppositions as the material turn in journalism (see point 2.3.1). Biocommunicability entails that a certain degree of agency or performativity is attributed to language and discourse. The correspondence between a material take on news sourcing, on the one hand, and biomediatization as put forth by Briggs and Hallin (2016), on the other hand, thus resides in their materiality, i.e. in the attribution of a performative/agentive capacity to non-human things such as technologies or ‘the objects of journalism’ and to the biocommunicable discourses in health news stories. By combining these two perspectives, this dissertation aims to overcome an important limit of the materiality of journalism (cf. point 2.3.2). That is, the material turn’s neglect of symbolic meanings will be overcome by incorporating the materiality of the discourses contained within health news stories.

3.2.1 Co-production: the hybridity of health news

The concept of co-production is a reaction against strong positivistic, linear-reflectionist perspectives on the production of health news that are common in the literatures of (public) health communication and public understanding of science (e.g. Kim, Park, Yoo & Shen, 2010). This linear-reflectionist perspective on health news is also referred to as the “two cultures” trope and dates back to Snow’s early account of the misunderstandings (and even adversity) between the natural sciences and the humanities (Nelkin, 1996; Seale, 2002, pp. 51- 54; Snow, 1959). Conceptualizing health news as the translation of biomedical information from (specialized) science to (popular) journalism, each

operating according to particular and contradictory sets of logics, then becomes the main explanation for inaccuracies, bias or “interreality distortion” in health news (Briggs & Hallin, 2016, p. 30).

Yet, as argued by those focusing on the relations between health journalists and their sources, both from the angle of health sociology (e.g. Conrad, 1999; Lupton, 1995; Seale, 2002) as well as from the angle of journalism studies (e.g. Albæk, 2011; Anderson, Petersen & David, 2005; Peters, 1995; Peters et al., 2008), the linear-reflectionist view is problematic. It is not possible to attribute bias in reporting exclusively to the grammar of media logics. Surely, this has some influence, but it cannot account for the complex imbrication of health and media. The two cultures trope, for instance, would explain certain characteristics of health news by referring to differences in interpretation between the biomedical community and professional journalism of what constitutes a newsworthy health story (Nelkin, 1996). That is, while journalists tend to be interested in new, sometimes non peer-reviewed research findings or breakthroughs, science will rely on systematic reviews, replication and nuance (Entwistle, 1995; Nelkin, 1996). However, there is a growing realization that scientists themselves may appropriate certain logics of media such as the sensationalization of research results already in the original press release in order to maximize public attention. Media attention can legitimize the research in the eyes of possible funders even if it has not yet gone through peer-review (e.g. Holland, 2018; Peters et al., 2008; Sumner et al., 2016). It is precisely in this context that the concept of mediatization becomes relevant. Following Strömbäck (2008), the highly mediatized practice by which scientific press releases are “preformulated” to anticipate the logics of media reflects a figurative colonization of the domain of health and biomedicine by media logics (Agha, 2011; Briggs, 2011b, p. 223). The unconscious adoption of media logics by non-media professionals may even determine the activities of certain health stakeholders. For instance, health insurers take into account possible expectations of media coverage when deciding on which topics to focus in the future (Van den Bogaert, Stroobant & Bracke, 2018). In other words, if certain health issues are perceived as more media-genic than other issues, then such issues are more likely to be put into the limelight by some social insurers.

In sum, the notion of co-production firstly points towards a deep interpenetration and an imbrication of professional logics of health and media actors. Secondly, on a more abstract theoretical level, co-production also entails a view of science, scientific facts, objects and subjects as socially-embedded phenomena. Approximately twenty years before *Making Health Public* (Briggs & Hallin, 2016), Lupton (1995, p. 2) already emphasizes “that the practices and discourses of public health are not neutral, but rather are highly political and socially contextual, changing in time and space”. The newly established *Nutri-Score* label – a biopolitical measure indicative of how healthy certain foods are, ranging from green (healthy) to red (very unhealthy) – introduced by the Belgian federal government, in collaboration with Belgian supermarket groups *Colruyt* and *Delhaize*, consumer organization *Test-Aankoop*, as well as many other stakeholders, is a good example of the co-production of health and biomedical objects (e.g. Askew, 2018, August 23; FOD Volksgezondheid,

2018, August 22, Hope, 2018, August 23). Similarly, health threats such as epidemics are socially constructed mediatized objects which most people only encounter through representations in media, not from first-hand experience (Briggs, 2011a).

As such, Briggs and Hallin's account is reminiscent of Bruno Latour's famous argument in "*We have never been modern*" (1991/1993) in which Latour marvels at the news stories in his daily newspaper. These stories, which "sketch out imbroglios²¹ of science, politics, economy, law, religion, technology, fiction" (Latour, 1991/1993, p. 2), Latour argues, connect "the most esoteric sciences and the most sordid politics" (1991/1993, p. 1). Being inconsistent with terminology, he refers to these stories alternatively as instances of "translation" (Latour, 1991/1993, p. 10), "hybridization" (1991/1993, p. 11) or "mediation" (1991/1993, p. 12). These processes denote how "mixtures between entirely new types of beings, hybrids of nature and culture" are being created every day, for example, in newspaper articles (1991/1993, p. 10). In what follows, the term co-production will be used rather than any of the other terms mentioned. The idea behind co-production thus has a long history in the sociology of science and has subsequently found wide acclaim in other academic domains as well. For this study of health news, co-production is necessary for conceptualizing hybridity in Chadwick's (2013) media system as well as for conceptualizing journalism as emerging from networks of interconnected actors and technologies (e.g. Anderson, 2010; Domingo et al., 2014).

However, contrary to Latour, who does not consider health news itself as an interesting venue for exploring how such hybrid health-media objects emerge, Briggs and Hallin successfully put health news back on the agenda of media and journalism scholars²². Of course, as is evident from this literature review, the theoretical and empirical contributions of Briggs and Hallin are invaluable for further explorations of health news; but maybe – just maybe – the greatest merit of their efforts is the incentive it gives to journalism scholars to focus on the ubiquity of health news as a socially meaningful phenomenon.

3.2.2 Boundary-work: untangling 'hybridity'

As argued in the previous chapter (under point 2.2.3.2), the hybrid turn in journalism is criticized for making things "messy", for denying the "purity" and the stabilizing processes of professional journalism, and for viewing contemporary forms of journalism as entirely new hybrids, void of historical contingencies (e.g. Mitchelstein & Boczkowski, 2009; Peters & Broersma, 2018; Witschge et al., 2018; Zelizer, 2015). Clearly, the aim of introducing a framework of biomediatization – which emphasizes the deep interconnectedness of health and media – is certainly not to get bogged down in a

²¹ 'imbroglio', n. sg. 'an unwanted, difficult and confusing situation, full of trouble and problems' (cf. OED, <http://www.oed.com/view/Entry/91731?redirectedFrom=imbroglio#eid>)

²² In this respect see also the special edition of *Journalism Practice* 6(1) - with guest editor F. Hanusch - on lifestyle journalism which explicitly addresses "the scholarly neglect of lifestyle journalism or 'news you can use'" (Franklin, 2012, p. 1). This includes reporting in fields such as "travel, fashion, style, health, fitness, wellness, entertainment, leisure, lifestyle, food, music, arts, gardening and living" (Hanusch, 2012, p. 5).

downward spiral of empty hybridity. Biomediatization does not claim that the domains of health and media are indistinguishable, rather it aims to better understand the dynamics involved in the approximation of these two domains. In order to address this issue of *differentiation*, the process of boundary-work is introduced (Gieryn, 1983). Despite the convergence between the domains of health and media in some respects, e.g. the drive to sensationalize research results in order to garner more public attention, “boundary-work is a real and central part of the biomediatization process” (Briggs & Hallin, 2016, p. 207).

While it is fairly easy to speak of the *interpenetration* of various social domains from an academic vantage point, it is far more difficult for those who are professionally involved to recognize and accept the reality of biomediatization. The “threats” to the autonomy of the respective domains of expertise that professionals experience due to processes of mediatization and biomedicalization, are countered through practices of boundary-work. Building on Gieryn (1983), “boundary-work” is defined as “the construction of boundaries that separate science from non-science and partitioning scientific knowledge in particular domains” (Briggs & Hallin, 2016, p. 4). For instance, the boundary-work performed by journalism scholars who had consistently defined their object of study in a utilitarian, political-democratic fashion had created a boundary around the field that excluded softer forms of journalism as potentially interesting objects of study (e.g. Zelizer, 2013). Applied to health news, boundary-work thus also explains the pervasiveness of the two cultures trope in the literatures of public health communication and the translation metaphor in the discourses of both health and media professionals. While the journalistic role conception of health reporters includes aspects such as entertainment, watchdog-journalism, or even advocacy, many tend “to view themselves as ‘translators’ of science and/or biomedicine for the lay public” (Forsyth et al., 2012, p. 133; Hinnant, Jenkins & Subramanian, 2016; Secko et al., 2013). Consequently, in journalism, boundary-work is often invoked to refer to how journalists claim professional authority over the news production process thus protecting it from ‘alien’ influences, e.g. from citizen-journalists (e.g. Eldridge, 2017; Lewis, 2012). In the case of health journalism, journalists often protect their profession (e.g. by defending their choice for a pronounced human-interest framing) by contrasting journalism to medicine (Forsyth et al. 2012; Hinnant et al., 2016; Nelkin, 1996).

Again, a clear parallel with the notion of boundary-work is found in the work of Bruno Latour. Alongside “hybridization” (or “translation” as he calls it) Latour identifies “purification” as the second defining process of modernity. For Latour (1991/1993, p. 10), “purification” refers to the process that “creates two entirely different ontological zones”. Undoubtedly, Latour's original – deeply philosophical essay – in which he defines modernity as consisting of these two processes, has inspired subsequent research in various domains, not in the least in the fields of STS, health sociology and (medical) anthropology (e.g. Briggs & Hallin, 2016; Clarke et al., 2003; Dumit, 2012; Gieryn, 1983). The argument here is that the material turn in journalism studies could boost its theoretical carrying power by copying the example of the aforementioned STS scholars. Inspired by the many accounts in

which processes of ‘hybridization’ and ‘boundary-work’ are put on a par as the core components of contemporary socio-cultural processes of change, the material turn in journalism will advance its theoretical argument if it succeeds in identifying instances of boundary-work or “purification” that arise as reactions against the “messiness” of hybridity.

3.2.3 The limits of (bio)mediatization

While Briggs and Hallin have successfully integrated their empirical efforts and theoretical contributions within a framework of mediatization, mediatization has been substantially criticized over the past years (Corner, 2018; Deacon & Stanyer, 2014, 2015). This section does not aim to give a comprehensive overview of the literature on mediatization (but see the edited volumes by Lundby (2014) or Driessens and colleagues (2018)). However, given the centrality of the work of Charles Briggs and Daniel Hallin who very explicitly establish connections with the mediatization paradigm, a brief and critical note on mediatization seems in place.

Most importantly, mediatization has been criticized for being too general to be meaningful (Deacon & Stanyer, 2014, 2015; Krotz, 2007). Similar to the criticisms on hybridity in journalism (see point 2.2.3.2), it is doubtful whether analysing everything in terms of mediatization actually advances our understanding of the studied phenomena. Furthermore, that literally everything can be analysed in terms of mediatization points to an inherent lack of discriminatory power in the mediatization paradigm (Deacon & Stanyer, 2014).

Associated with this generality, no single unified definition of mediatization exists (Deacon & Stanyer, 2014, p. 1033). Rather, various research traditions within the mediatization paradigm, i.e. the institutional, the social-constructivist and recently also the material perspective on mediatization, each employ their own definition (cf. Lundby, 2014, p. 5). This also entails that there is no unified definition of media, let alone of journalism, within the literature on mediatization. As argued by Peruško, Čuvalo and Vozab (2017, p. 4), “within the mediatization approach, the institution of media is not typically differentiated from the institution of journalism”. Consequently, investigations of journalism that explicitly embrace a framework of mediatization are limited (for notable exceptions see Kammer (2013) or Peruško, Čuvalo and Vozab (2017)).

However, one could argue that, by adding the prefix *bio-* and by developing a mediatization-argument that is tailored specifically for studying health news, Briggs and Hallin have partly countered the claim that mediatization is too general to be meaningful. Nevertheless, playing the devil’s advocate, one could argue that it is precisely because of the generality and conceptual vagueness of mediatization that Briggs and Hallin were able to use this increasingly popular concept within the broad field of media studies and integrate it within a body of literature from without this tradition. It is therefore reasonable to agree with Corner who notes that the main advantage of a general concept such as mediatization is “not simply conceptual, but *institutional*, helping to connect

previously divergent groupings, to provide a productive heading for boundary-spanning research initiatives” (Corner, 2018, e3, [*emphasis original*]).

3.3 Biocommunicability: the performativity of health news

A constant assumption underlying the work of medical anthropologist Charles Briggs is the view that language is performative (e.g. Briggs, 2005, 2011b). This is not a new idea. In fact, it dates back to the 17th century materialist philosophy of John Locke, who identifies “three great provinces of the intellectual world, wholly separate and distinct from one another” rather than two (Bauman & Briggs, 2003; Locke 1959/1690, p. 483 as cited in Briggs, 2011b, pp. 460-461). Alongside the then (and today still) dominant *Cartesian* dualism of nature and society (body and mind), Locke reappreciates language as a separate field existing in its own right (next to “politics” and “nature”), but also as entering all other social fields (Bauman & Briggs, 2003). This material perspective on language and society has subsequently been reanimated (and refreshed) in the late twentieth and early twenty-first century through the philosophical paradigm of “new materialism” (Bauman & Briggs, 2003; Dolphijn & van der Tuin, 2013, p. 124; Sencindiver, 2017) (cf. point 2.3.1). Essentially, to consider discourse as performative stipulates that language should not be defined simply as a referential ‘mirror’ of reality. The metaphysical presupposition of “representationalism”, i.e. “the belief in the ontological distinction between representations and that which they purport to represent” (Barad, 2003, p. 804 as cited in Dolphijn & van der Tuin, 2013, p. 124) is rejected because it would imply that language itself (and therefore also concrete instances of ‘language-in-use’ or ‘discourse’) is entirely separate from the reality it aims to describe (Bauman & Briggs, 2003). Discourses are not merely declarative of reality, rather they participate in and (co-)perform that same reality (Bauman & Briggs, 2003).

This view on language and discourse carries through in Briggs’ and Hallin’s account of biomediatization (Briggs & Hallin, 2016). In the light of the existing body of literature on mediatization (e.g. Lundby (2014) or Driessens et al. (2017)), the biomediatization framework is original and innovative in rendering explicit assumptions on language and discourse that seem to linger under the surface of many accounts of mediatization anyway. Hence, it could advance the collective scholarly understanding of the dynamics of mediatization if such assumptions are made explicit. After all, as argued by Bauman and Briggs (2003, p. 60):

By defining language as purely referential and declaring its separation from the material and social worlds, the powerful social indexicality and performativity of new hybrids can be rendered ideologically almost invisible even as they are stamped on people’s voices and bodies.

What the above quote alludes to is the fact that if we assume that health news is merely a reflection of some external biomedical reality, we run the risk of overlooking how health news stories engender cultural models or “cartographies” of how health knowledge circulates (Briggs, 2011b, p. 459). As

such, these cartographies or “biocommunicable models” actively partake in shaping biomedical objects and subjects (Briggs & Hallin, 2016, pp. 23-50). Concretely this means that news stories are discursively inscribed with cartographies of biocommunicability or “cultural models for the production, circulation, and reception of health knowledge” (Briggs & Hallin, 2016, p. 7). The advantage of introducing biocommunicability in a study of health news is that it “draws attention to the ways in which the constitution of social subjects is embedded in ideologies about the ‘flow’ of information and of discourse, about who constitutes biomedical knowledge, who is authorized to evaluate it and to speak about it, and through what channels it is assumed to flow” (Briggs & Hallin, 2007, p. 46).

Looking at health news through a theoretical lens of biocommunicability, rather than merely pondering over accuracy of health information that is conveyed through health news (e.g. Bubela & Caulfield, 2004; Clarke, 2006; Entwistle, 1995; Hilton & Hunt, 2011; Husemann & Fisher, 2015; Ostergren, Dingel, McCormick & Koenig, 2015; Seale, 2002, p. 44; Tong, Chapman, Sainsbury & Craig, 2008), proves to be extremely useful for understanding the more abstract subjective, affective and ethical dimensions of health news (Briggs, 2011b). For instance, health news may inadvertently stigmatize patients if stories consistently present cartographies or biocommunicable models in which patients are presented as “biocommunicable failures” (Briggs & Hallin, 2016, p. 186), i.e. as incapable of rationally utilizing relevant bits of information (selected from the vast quantities of health information that are available) for maintaining their own health.

Affectively, scientists and doctors are not expected to show emotion, although the latter are expected to be attentive to patients’ emotions as well as to the bare scientific facts. Members of the audience, in turn, “must display the appropriate degree of anxiety when information regarding their own ‘risk factors’ or condition is disclosed and exude²³ the self-interest and self-confidence needed to follow doctors’ recommendations” (Briggs, 2011b, p. 471). Ethical issues come to the surface if the unspoken sets of normative assumptions of how knowledge should circulate are violated. Consider for instance the public indignation that arises when clinicians withhold trial results; when public officials fail to publicize important information; when reporters are accused of sensationalization; or even when lay people fail to utilize available health information in order to maintain their own health (Briggs, 2011b, p. 471).

Biocommunicability is important because it draws attention to the gaps between, on the one hand, the pragmatics of how knowledge circulates in specific contexts and, on the other hand, the meta-pragmatics of how discourses indexically map ideological projections of knowledge circulation. It is paramount not to confuse this opposition with the common positivistic approach to health communication as a the measuring of gaps between the “real” (e.g. biomedical knowledge presented in

²³ “exude”: v. intr.: 1. to ooze out, 2. to undergo diffusion; v. trans.: 1. to cause to ooze or spread, 2. to display conspicuously or abundantly. (cf. OED, <http://www.oed.com/view/Entry/67236?redirectedFrom=exude#eid>)

popular media which is often distorted) and the “ideal” (e.g. that which typically pertains entirely to the domain of biomedicine and therefore logically precedes its popular representations) (e.g. Kim et al., 2010) or with the two cultures approach that separates journalism from science as an inferior form of knowledge production (Hallin & Briggs, 2015; Nelkin, 1996; Snow, 1959).

In other words, biocommunicability significantly shapes how journalists, public relations officers, public health officials, politicians, healthcare professionals and the public perceive their own roles as well as how they envision their relation vis-à-vis each other (Briggs, 2011b). Specifically for health news sourcing, the naturalization of specific cartographies, furthermore, induces specific storylines or “frames” thus possibly limiting or unconsciously steering journalists when selecting sources (Briggs & Hallin, 2016, p. 215; Holland, 2018). For example, the linear model in which biomedical experts produce health knowledge for a passive lay audience that is waiting to be educated is a catalyst for the overwhelming dominance of biomedical elites as the primary source in much health news (e.g. Hallin et al., 2013; Stroobant, De Dobbelaer & Raeymaeckers, 2018; van Trigt et al., 1994; Verhoeven, 2008; Wallington et al., 2010).

In collaboration with prominent media scholar, Daniel C. Hallin, and several researchers in Latin-America (cf. Briggs & Hallin, 2016, p. xi), the anthropological concept of “biocommunicability” is further elaborated and specifically applied to the production of (mainstream) health news in *Making health public* (2016). Drawing on content analysis, ethnography and (critical) discourse analysis, three cultural models of biocommunicability are distinguished: (1) the biomedical authority model; (2) the patient-consumer model; and (3) the public sphere model (Briggs & Hallin, 2010, 2016; Hallin et al., 2013). The ensuing section will briefly describe each of these models and, in doing so, give particular attention to the implications of biocommunicability for journalistic practice, and sourcing specifically.

3.3.1 Biomedical authority model

In the biomedical authority or “doctor knows best” model, nearly all the news story’s sources are biomedical authorities; audiences, on the contrary, are cast as passive receivers of information (Briggs & Hallin, 2007; Briggs & Hallin, 2016, p. 25; Dutta, 2008). Similarly, the role of the journalist is also a passive one because biomedical authority biocommunicability casts journalists simply as transmitters of biomedical knowledge from a superior biomedical expert context to a lay context (Hallin & Briggs, 2015).

If one considers the sources of health news as proxies for this model’s presence as do Hallin and colleagues (2013), then the biomedical authority model seems to be by far the most dominant one (Briggs & Hallin, 2016; Dutta, 2008, p. 118). The results in chapter five confirm that biomedical experts such as doctors and academics feature prominently in health news (cf. Chapter 5). Also other content analyses seem to systematically reach the same conclusion (e.g. Hallin et al., 2013; van Trigt et al., 1994; Verhoeven, 2008; Wallington et al., 2010). Albeit increasingly challenged by other biocommunicable models, quantitative analyses of news sources in health news have repeatedly

suggested an overall dominance of the biomedical model. As a consequence, these biomedical experts often assume the status of “primary definer” when it comes to health issues (Hall et al., 1978; Hallin et al., 2013), even though – as will be discussed below – biomedical expertise is increasingly confounded with the expertise of other producers of health knowledge.

In this respect, it must be noted that all the biocommunicable models, including this one, hardly ever appear in a pure form. Instead, various cartographies can compete within one and the same story (Briggs & Hallin, 2010). For instance, consider what popular daily, *Het Laatste Nieuws*, writes on the 17th of February in 2018:

***Fighting flu with Dettol? Nonsense!*²⁴**

The flu outbreak is reaching its peak these days. Save yourself, if you can. How? By cleaning everything with antibacterial soap, like promised in television ads? “No use doing that”, experts say, “The flu is not a bacteria that you can keep out using water and soap”.

[...]

Is the message for anyone who wants to spare himself from shivering under the sheets with a thermometer at the ready to meticulously clean every corner of the house? “Of course not”, experts say. “It is simple: the flu is not a bacterium, so cleaning with Dettol is unnecessary”, says virologist and flu commissioner Marc Van Ranst. “A normally clean house is more than enough. Leaving the windows open every now and then to ventilate is the message if you want to kill bacteria. That is something you should do anyway if you clean with Dettol because that stuff smells if you ask me! If you want to minimize your risk of getting the flu, then be sparing with kisses and handshakes”.

[...]

It is a yearly returning phenomenon. Around wintertime, flu strikes. Especially elderly and young children are projected as high-risk subjects who need to be extra careful (cf. Stroobant et al., 2016). On the one hand, the story above is a typical example of the biomedical authority or “doctor knows best” model because the biomedical expert that is presented is unidirectionally debunking the claims made in advertisements for a disinfectant bactericide soap. The expert – a famous Belgian virologist – contends that the advertisements for this particular soap may wrongfully arouse fear by highlighting and magnifying the risks of poor hygiene. It is a typical example of what the literature describes as “fear-mongering” or “disease-mongering” (Moynihan & Henry, 2006) (cf. point 2.1.3.2.1 and 3.1.2). Audiences, in turn, are projected as passive listeners who need to be taught about flu, i.e. it is not a bacteria but a virus. On the other hand, this story also contains elements of the patient-consumer

²⁴ “Griep bestrijden met Dettol? Onzin!”, *Het Laatste Nieuws*, p. 7, 17/02/2018. Translation mine. Original available at <https://www.hln.be/de-krant/griep-bestrijden-met-dettol-onzin~a8b7e026/> (paywalled).

model of biocommunicability – which will be discussed next – since readers are clearly addressed as potential consumers rather than as patients!

3.3.2 Patient-consumer model

Contrary to the biomedical authority model, the second model casts audiences as active, rational consumers of health information by framing individual physicians as the weak link in the process of knowledge transmission and as having trouble to keep up with the latest scientific developments (Briggs & Hallin, 2016). Members of the audience are addressed as individuals who are morally obliged to actively seek out health information in order to maintain in good health because physicians fail to do so (Briggs & Hallin, 2007; 2016; Dutta, 2008). While they do not appear as explicit news sources in the actual news story, journalists and public relations professionals are “key actors” in the patient-consumer model of health reporting (Briggs & Hallin, 2016, p. 33; Declercq, 2018). Assisted by biomedical scientists, patient advocacy groups and sometimes the industry, these stories “pedagogically map the rational/information acquisition/decision-making process that patient-consumers undertake” (Briggs & Hallin, 2016, p. 33).

The story about the antiseptic soap, despite being a clear illustration of the biomedical authority model, is actually right at the crossroads of two models. Even though the virologist is projected as “knowing best”, patients are implicitly (i.e. no citizen or lay sources explicitly appear in the story) addressed as consumers and are warned not to be fooled by the advertising claims made about the health benefits of antiseptic wash. What the *Dettol* example thus elegantly demonstrates is that the intersection of market logics prompting lay people to be addressed as active and rational consumers of health (as if health were any other commodity) can result either in patient empowerment – turning lay persons into “expert patients” (Dumit, 2012; Declercq, Van Leuven & Tulkens, 2018) – or in “biocommunicable failures” (Briggs & Hallin, 2016, p. 186) if they fail to “correctly” use health information in function of their own personal health.

3.3.2.1 *Happy health news and breakthrough stories*

The bulk of journalistic efforts are exhausted in the reporting of bad news such as disasters, corruption, scandals, war conflicts, crime and the like. Health news, however, is one of the few areas in which news can give hope (de Botton, 2014). It can offer cures for previously incurable diseases or even immortality (e.g. immunity to ageing) due to improvements in science and technology. The positive patient-consumer model in which the knowledge gap in the biomedical circuit is filled by successful collaborations between consumer-patients, journalists, the industry and health advocacy groups is mostly encountered in human-interest, lifestyle, and service-oriented journalism (Briggs & Hallin, 2007). Since this type of content is cheap to produce as it relies heavily on information subsidies, thus “easing the integration of advertising and editorial content” (Underwood, 1993 as cited in Briggs & Hallin, 2007, p. 53-54), these types of stories are gaining popularity with news organizations.

However, despite the fact that meta-processes of modernity such as neo-liberalization, globalization or even mediatization, elegantly weave together the emergence of optimistic consumer health news and the commodification of health itself, there might be another more deeply philosophical and cultural explanation here. In premodern times, when faith and religion, rather than science were the dominant modes of knowing, time was conceived as cyclical (de Botton, 2014). Today, health news contributes to a perception of life as an upwards arrow denying the gruesome fact that one day we will die. Hence, to reduce the explanation as to why health news has gradually been changing its face to a purely economic reasoning would not do justice to the complexity of the phenomena involved in the production of health news that this dissertation aims to capture.

3.3.2.2 *Public indignation, scandals and misconduct: the changing role of experts*

When the patient-consumer model tips over to the negative side, it is critical of instances where the conflation of market logics (maximizing profits) and public health produce unethical (or even illegal) marketing practices (Briggs & Hallin, 2016). Critical voices condemn cosy relationships between the industry and patient organizations (Rothman, Raveis, Friedman & Rothman, 2011); between the industry and physicians (Rosenbaum, 2015); between the industry and governments (Garattini, 2016), as well as between the industry and health journalists (Lipworth et al., 2015; Morell et al., 2015). In the ‘Dettol-story’, for instance, the biomedical expert does more than merely debunking the exaggerated advertising claims. His critical attitude is apparent in the way he ridicules the patient-consumer model. Instead of celebrating consumerism in the context of health (like in the positive stories) so that patient-consumer models may become considered business as usual (cf. the performativity of discourse!), the expert is very dismissive of it. To think that cleaning with a particular kind of soap, compared to ‘regular’ soaps, will prevent the flu from entering your house is simply ridiculous. As the title of the article reveals, to think this is possible is just “nonsense”. Clearly, the expert source in this particular example thinks that consumerism has taken a turn for the worse.

Furthermore, the implicit assumption that individuals are capable of rationally seeking out, collecting and understanding relevant and trustworthy health information may be fundamentally flawed, at least for some. The sense that audiences are washed away by tsunamis of health information coming at them via various channels can be disempowering instead of empowering. The increased interpenetration of public health and market logics creates the imminent fear that information presented to us is biased or deliberately misleading. This can be very immobilizing, even for journalists. As one editor from the interview sample in chapter eight put it:

Due to the entanglements between academia and the pharmaceutical sector, you as a journalist have no choice but to do a very thorough job. You may have checked trustworthy sources, but are still left with the feeling that, in the end, you do not know. We are not the scientists. Journalists collect information and try to separate the nonsense from the reliable

stuff. In the case of scientific information, the only option you have is to rely on a number of scientific sources who will make that assessment for you.

Especially those who, rather than acting as advisers want to act as watchdogs of the “medical-industrial” complex (Clarke et al., 2003, p. 162), find it increasingly difficult to fulfil this role (Lipworth et al., 2015; Morrell et al., 2015). Additionally, this quote reveals, in tandem with what Briggs and Hallin (2016, p. 38) also find in their extensive fieldwork, that even research which is not privately funded is sometimes perceived as violating the unwritten rules of biocommunicability. This occurs, for instance, when health claims are exaggerated in university press releases because public visibility may enhance the researcher’s chance of procuring future funding (Anderson et al., 2005; Fenton, 2014; Sumner et al., 2016).

3.3.3 Public sphere model

In the third model, the audience is addressed as a group of citizens (not as patients or consumers) who need to be informed about issues of public health. As such, the third biocommunicable model projects health issues not as individual problems of knowledge, but as issues of public concern that are subject to open debate in the Habermasian public sphere (Briggs & Hallin, 2010). Of course, this does not mean that the previous two models are not active in the public sphere. Instead it refers to a different approach on the part of the journalist who – in a public sphere model of health reporting – takes on a very active watchdog role. Several authors independently find that this mode of reporting is on the rise (Hodgetts et al., 2007; Hallin et al., 2013; Holland, 2018).

Although difficult to measure quantitatively, as illustrated by Hallin and colleagues (2013) who hypothesized a rise in the number of political and government sources between 1960s and 2000s (see also Briggs & Hallin, 2010), but found no significant increase of the number of this type of sources, public sphere biocommunicability does influence the production process of health news. When scrutinizing the tone of health stories about the institution of biomedicine, Hallin and colleagues (2013, p. 125) observe an important shift between the 1960s and 1970s. Positive projections of biomedical authority in a “Sphere of Consensus” (Hallin, 1986) that “celebrate the achievements of medical science and the heroism of the ‘war’ against disease” (Hallin et al., 2013, p. 125) are replaced by more critical projections of biocommunicability. The overall tone of news stories is still surprisingly positive compared to other news beats, yet the number articles reflecting a negative attitude towards the biomedical complex as well articles in which a specific controversy is foregrounded increases towards the end of the millennium (Hallin et al., 2013). In this respect, Hodgetts and colleagues (2007, p. 61) note that a transition towards “civic-oriented” health news could promote socio-political analyses of health issues that answer to the needs of “economically marginalized groups”. Health problems of the “profitable” patient-consumer audience might not correspond to the problems experienced by, for instance, the chronically ill, ethnic minorities or people in long-term unemployment. What Hodgetts and colleagues (2007) allude to is that a more

overt public sphere approach to health reporting will lead to a more inclusive type of health journalism in which a more varied array of sources will come to the fore. That is, the types of sources cited in articles that ideologically project public sphere biocommunicability are the most diverse of all three models: lay people, policy-makers, activists, social movements, pharmaceutical representatives, union workers, scientists or doctors can all feature in one and the same story.

In another study drawing on interviews with journalists who specialize in mental health, Holland (2018) notes that the rise of public sphere biocommunicability causes health journalists in Australia to question the guidelines for ‘responsible’ mental health reporting which were developed together with researchers, journalists and organizations in the sector of mental health. Such guidelines, for example, encourage health journalists not to associate mental illness with violence or to use words with positive connotations, e.g. “psychologist” or “psychiatrist” rather than the more negative “shrink” (Holland, 2018, p. 1771). One freelance journalist from Holland’s study (2018, p. 1778) commented that she had experienced a “backlash” in response to a story she had written about the benefits of cognitive therapy for people who suffer from voice hearing (i.e. auditory hallucinations). The primary sources for the story were patients that the journalist had met at a mental health conference and who had positive, first-hand experiences with cognitive therapy. These sources were supplemented with additional background research into the issue of cognitive therapy and voice hearing. Especially on *Facebook*, many felt that this particular article was irresponsible because it could encourage people suffering from mental health to stop taking their medication. In other words, the reactions as well as the guidelines seem to be grounded in a model of biocommunicability in which patients are projected as vulnerable and in need of protection. It is evident from this example, that biocommunicability can help understand, not only the sourcing choices that health reporters make, but also the wider societal implications of health reporting.

EMPIRICAL ENQUIRY

4 METHODOLOGY

4.1 Introduction

Conceiving a PhD-project on the basis of individual journal articles almost inevitably leads to a certain degree of overlap. Therefore the purpose of this chapter is not to repeat methodological considerations from the individual studies but rather to integrate the various methodologies within a comprehensive overview that is explicitly connected to the theoretical enquiry. In other words, the current chapter is in the first place meant as a reader's guide for understanding why specific methodological choices were made in relation to the overarching research questions. Secondly, this chapter will elucidate how the methodologies in the individual empirical chapters are complementary. Most notably, this dissertation employs a "multi-method" (alternatively also referred to as "mixed-methods") research design that alternates between manual and automated, as well as between qualitative and quantitative research techniques (Creswell, 2014).

In order to answer the central research questions of this dissertation (repeated below for practicality), four empirical studies were conducted (cf. Table 4-1 and Figure 4-1). These empirical chapters, which form the basic building blocks of this dissertation, have all been published in peer-reviewed, academic journals. As a consequence of distinct stylistic preferences per journal, the referencing systems used in the empirical chapters may not correspond to the general style of referencing in the remaining chapters of this dissertation. All references are found at the end of the dissertation under 'References', rather than individually at the end of each chapter.

RQ1: Which sources are used in health news?

RQ2: Does the use of sources differ among various media types? And if so, how are media types different?

RQ3: How do media and health professionals perceive the sourcing process of health news and how (if at all) do these perceptions impact the co-production of health news (and thus ultimately health news itself)?

Before continuing to explain the various steps of this mixed-methods research design more elaborately, it should be noted that three distinct content analyses were conducted (cf. Table 4-1). In other words, chapters five, six and seven, each employ the method of content analysis but do so on distinct samples of media content. The only exception to this is a small set of online health news items ($n = 103$) that is shared between chapters five and six. Chapter six digs deeper into the hypertextuality of net-native online health news websites because these websites were found to contain a very special type of news source, i.e. the hyperlink. The basic subsample of 103 net-native online health news

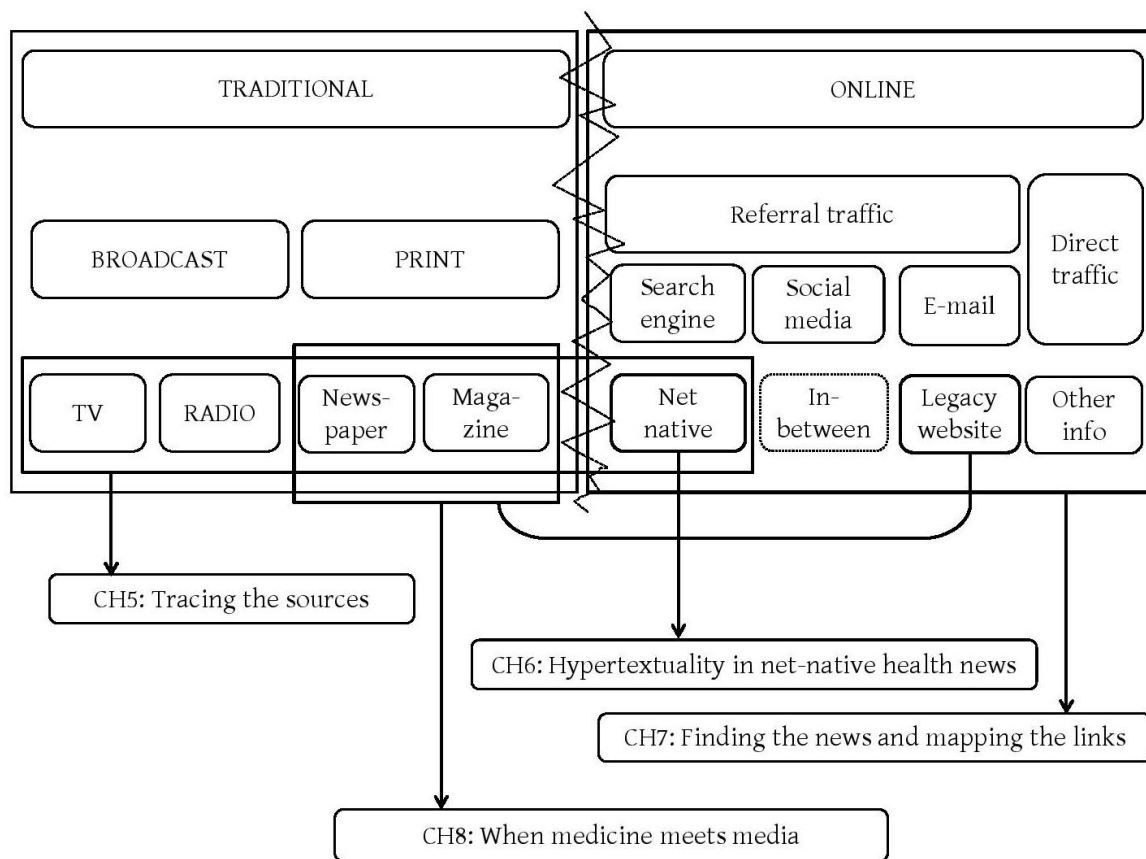
items from chapter five was enriched with an additional set of 376 net-native online health news items in chapter six. Net-native health news was chosen rather than the online presence of the legacy media brands in the sample to avoid duplicates of news items that appeared in print first but which are subsequently put online. This type of online news is called “shovelware” (Stovall, 2005). Nevertheless, as net-native health news covers only a marginal part of the online health news environment (cf. Figure 4-1), chapter seven extends the sample of chapter six by comparing various types of online news.

Table 4-1. Overview empirical enquiry per chapter

Chapter	Topic	Method	Sample
5	Sourcing practice (general comparison between media types)	Manual content analysis of health news sources	N=981 (health news items) N=1998 (health news sources)
6	Sourcing practice net-native online journalism	Manual content analysis hypertext of net-native health news	N=479 (health news items) N=769 (internal and external hyperlinks)
7	Sourcing practice online news (comparison three types of online journalism)	Environmental scan of SERPs	N=180 (search results from SERPs)
		Automated content analysis hypertext of three types of health news websites	N=5428 (external hyperlinks) N=254 (external web domains)
8	Perceptions of health news sourcing practice from within and without journalism (editors and health news sources)	Elite interviews	N=36 (respondents)

Finally, the schematic representation in Figure 4-1 (below) visually connects the distinct foci of the empirical enquiry with various components of the contemporary hybrid media system (Chadwick, 2013). The terms ‘old’ and ‘new’ media are deliberately not used to avoid confusion. After all, that which was once new in the past will eventually become old in the future (Bauman & Briggs, 2003; Chadwick, 2013; Meyrowitz, 1994; Stross, 1999) (cf. point 2.2.3.2). Instead the terms ‘traditional’ – referring to the media system before the popularization of Internet browsers in the 1990s – and ‘online’ are used as classificatory constructs. Importantly, this scheme is not intended as a picture of reality but rather as an abstract mapping that guides the empirical enquiry.

Figure 4-1. Relation empirical chapters to components of the hybrid media system



4.2 Quantitative content analysis

Because content analysis has a rich history in media studies (Berelson, 1952; Berger, 1991; Krippendorff, 1980; Neuendorf, 2002; Riffe, Lacy & Fico, 2005), numerous definitions have been proposed over the years²⁵. In general, content analysis – as the name suggests – departs from a systematic analysis of those elements that are manifest in media content in order to make quantifiable inferences about these elements as well as about their context of occurrence (Neuendorf, 2002). Definitions also often stress the *a priori* operationalization of the topics in which the researcher is interested so that replicability of the analysis is guaranteed. Content analysis has many advantages, i.e. it is relatively inexpensive, it is unobtrusive, it yields quantifiable results and is able to investigate both current and past events (Berger, 1991, pp. 92-93). Nevertheless, there are also some inherent drawbacks. Besides practical hurdles involved with data collection, it can take some doing to devise adequate operationalisations or “working definitions” of the topics under scrutiny (Berger, 1991, p.

²⁵ Neuendorf (2002, p. 10) provides an exhaustive historical overview of definitions for the method of content analysis.

93). The content analyses in chapters five, six and seven, for example, require clear definitions of ‘news source’ and ‘health news’ (cf. point 4.2.1).

This dissertation applies content analysis as its primary method precisely because it allows us to quantify and categorize the news sources cited in health reporting (RQ1). Furthermore, content analysis becomes most useful when a comparative dimension is added (Berger, 1991, p. 94), hence the choice for content analysis to unravel how health news sourcing practices diverge among various media types (RQ2). Yet, in order to counter some of the difficulties inherent to the method of content analysis, this dissertation will combine content analytic techniques with network analysis (cf. point 4.2.2) and qualitative in-depth interviews (cf. point 4.3). Briefly, network analysis provides comprehensive measures and tools for reassembling that which was dissolved in the procedure of content analysis. Especially for digital objects such as hyperlinks which function precisely to establish interactive connections among websites, network analysis provides a valuable means for mapping how individual items in the content analysis are connected. Interview methods, on the contrary, do not shed light on the internal connections among the various data points (i.e. news sources, individual news items and news outlets) but rather are able to support (or reject) inferences from the data.

4.2.1 Operationalizing ‘health’, ‘health news’ and ‘news source’

To define ‘health’ and concomitantly also ‘health news’ is not a straightforward matter. Yet, the operationalization and the development of *a priori* working definitions for these concepts are indispensable for the research design of a quantitative content analysis. Likewise, a clear delineation of the notion ‘source’ is of the utmost importance.

4.2.1.1 ‘Health’ and ‘health news’

Health is a multifold and complex notion that can be defined from several perspectives and for distinct purposes. Governments, media, doctors, pharmaceutical companies, private and social insurers or individual patients may all harbour varying definitions of what health is. This dissertation will depart from the World Health Organization’s definition of health (henceforth, WHO). The WHO is the specialized agency of the United Nations that aims to improve people’s health globally through collaborations with local partners and governments. The WHO is considered as a suitable guide for defining health because of its wide operating radius and the acclaim it receives within the biomedical community. Contrary to dictionary entries for the word ‘health’, the WHO employs a univocal definition of health that partly functions as their mission statement, since improving health globally is this organization’s primary objective. The WHO operationalizes health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 1948/2006, p. 1).

For this dissertation, ‘health news’ then refers to those *news items that are to a substantial degree health-related* (see appendix 2, on page 217 of this dissertation). On a practical level, this very broad and open definition of health guarantees that medicalized health topics such as PAS are also included

in the analysis (cf. 3.1.1). A too narrow, purely biomedical, definition of health as relating to a specific set of diseases and ailments would curtail this dissertation's ability to understand the socio-cultural meaning of health news. On a theoretical level, taking the WHO's open-ended operationalization of health as a point of departure matches the assumptions of materiality. After all, what materiality offers journalism research is not just a theoretical framework but rather an integration of both theory and method (Latour, 2005). Fundamentally, to understand communication processes, research needs to jettison taken-for-granted, historically inherited, predefined categories (cf. point 2.3.1). Methodologically, this implies a stronger focus on case studies, on anthropology and on ethnographic fieldwork (Boczkowski & Siles, 2014; Domingo et al., 2015). However, other more traditional methods such as content analysis (as well as interviews, focus groups or surveys) are not precluded. On the contrary, the strong object-oriented approach of materiality even encourages researchers to seek out new digital methods such as network analysis or the automated analysis of big data to strengthen and improve classical methods in communication research (cf. chapter 7) (Domingo et al., 2015). Hence, although quantitative content analysis necessarily relies on fixed *a priori* categorizations, the procedure for arriving at these working definitions is, nevertheless, wholly in line with the spirit of the material turn in journalism.

However, as a matter of practicality, two specific kinds of health-related news items were excluded even though they do fit this dissertation's working definition of health news. Firstly, news about the financial health of companies (including those companies in the healthcare sector) is excluded. These news items should in the first place be categorized as business or financial news which is itself, like health news, a form of specialized (niche) journalism. Exceptions to this rule are news items that contain financial or stock market information but which primarily focus on the health-related products or services that this company delivers. Secondly, although very manifestly health-related, news about sports' injuries, war casualties, traffic accidents or natural disasters such as earthquakes or tsunamis was not included. Very often such articles mention the health statuses of those involved. Therefore they could be considered as health-related news. However, since the main focus is often on other aspects of the event, such items were not included. Likewise, news items about crimes resulting in injuries or death were also excluded.

Ultimately, this dissertation's operationalization of health news as *substantially health-related news items* potentially covers a broad variety of issues. In order to keep the sample feasible and meaningful news items must, in one way or another, address the possible consequences for an individual's or a population's health as a central theme and not as a corollary of some other action or event such as a sports game, natural disaster, traffic accident, homicide or other crimes.

Nevertheless, a critical comment on such broad definitions of health seems in place. The open definition of health by the WHO suggests that the WHO, in fact, advocates "positive health" (Seligman, 2008, p. 3). In accordance with the WHO's definition of health, the concept of positive health, which has been around since the 1940s (see Locker & Gibson, 2006, pp. 162-163), is defined

as “a combination of excellent status on biological, subjective, and functional measures” (Seligman, 2008, p. 3). Both the WHO’s definition and the concept of “positive health” are thus maximally medicalizing because in these definitions there are no symptoms of positive health (Hafen, 2016). While the *presence of disease* can be measured easily by using the International Classification of Diseases (ICD) or the Diagnostic Statistical Manual for Mental Disorders (DSM-V), the presence of health becomes more difficult to operationalize if definitions of health include well-being, quality of life or happiness (Hafen, 2016). The definition of positive health in fact confuses symptoms of health, i.e. the absence of disease, with the determinants (or predictors) and consequences of health (Hafen, 2016). Positive feelings, happiness and functional aspects such as being able to partake in social activities, happiness, positive emotions or ‘feeling energized’ are predictors of good health (Seligman, 2008) but for the objective of health promotion the inclusion of general states of well-being may spur the medicalization of negative emotions (Hafen, 2016). Furthermore, since attaining a status of positive health is a highly individualized endeavour rooted in patient-consumer biocommunicability, campaigns that promote positive health may inadvertently create an implicit morality of good and bad choices (Devisch & Vanheule, 2015). Theoretically, people are free to choose whatever they want. Yet, in reality this “obligation to be free” (Rose, 1996) has paradoxical and possibly negative consequences because it casts those who make the wrong choices as biocommunicable failures or even as amoral citizens (e.g. a pregnant woman consuming alcohol or smoking, an obese person entering a fast-food restaurant) (Devisch & Vanheule, 2015).

4.2.1.2 ‘News sources’

News sources are operationalized as *the individual human actors and as the material objects on which journalists rely for information*. Even though the analytical distinction between human actors and material sources was included as a measure for coding (Stroobant et al., 2016), these two types of sources were subsumed in the resulting analysis. This was done because the primary interest of this analysis is on the societal origin of news sources that are projected as having authority to speak about health. Furthermore, it is often difficult, on the basis of the news item alone, to distinguish whether a quote comes directly from speaking with someone or whether it was taken from a press release. As such, the distinction between news items based on a press release or directly on what a spokesperson or human source may have told in an interview is not included here. Although it would be possible to make this distinction, there is no inherent motivation to do so from a material perspective.

Concretely, the coding of news sources was subject to two requirements. Firstly, sources were coded only if they were explicitly mentioned in the news item. This means that hunches about particular news items were disregarded. In several instances, the researchers were able to ascertain with considerable certainty – but still based on circumstantial evidence – that sources were used which were not explicitly mentioned in the news item. In order to ensure reliability of the coding, supposed source use was not coded. Secondly, secondary sources, i.e. sources mentioned by other sources, were

also excluded from the analysis. For example, if an interviewed patient mentions the advice given by a doctor, family member or friend, then only the patient is coded as source. After all, it is possible that the patient has misinterpreted the doctor's advice or that the patient's recollection of that doctor's advice is flawed. In some instances, sources who paraphrase or cite other sources may even deliberately do so in a fashion that distorts the message of the original source in order to achieve specific goals. In politics this is not hard to imagine. Hence, since health news is becoming increasingly politicized (Briggs & Hallin, 2010), paraphrased sources were not included in the analysis.

In chapters six and seven, which focus entirely on online health news, only hyperlinks were coded as explicit sources despite the appearance of other sources that were used but not linked to. For a more elaborate discussion of why hyperlinks can be seen as valid materializations of the online sourcing process see point 2.3.3.3. Despite the absence of a one-to-one relationship between hyperlinks and sources, hyperlinks in online news do in fact account for a considerable share of the sources. After closer inspection of the online subsample of 103 health news items in chapter five, the overwhelming majority, in fact, were hyperlinks. Despite the possibility that the frequency of hyperlinks in this subsample might be influenced by the fact that this was net-native health news (cf. chapter 7), hyperlinks were chosen as primary online sources.

4.2.1.3 *Types of news sources*

After a source was identified, the source was coded for its origin. Throughout this dissertation 'source origin' is sometimes also referred to as 'source type' or 'source category'. Obviously, this does not refer to ethnicity or nationality but to the nature of the organization or societal group to which sources belong. Often this is very straightforward because news sources, in order to be perceived as reliable by the audience, must be identifiable (Franklin & Carlson, 2011). Even if sources may fulfil different roles in different situations, they are always coded according to how the article presents them. For example, during the sampling period (i.e. February 2015), a well-known Belgian sports reporter for the public broadcaster²⁶ was fighting cancer. When he spoke about his disease and how it affected his work, the reporter was not coded according to his profession but according to his role as a celebrity patient.

The following source categories are distinguished: (1) press agency, (2) traditional media brand, (3) industry (e.g. pharmaceutical or food industry), (4) policy-makers (e.g. politicians belonging to a political party), (5) sickness funds (i.e. socially funded health insurers), (6) consumer organizations, (7) patient organizations, (8) academics, (9) associations of health professionals and hospitals, (10) associations of non-health-related professionals (e.g. trade unions), (11) ordinary citizens (patients, friends, and family of patients, vox pops), (12) civil society (e.g. non-profit organizations such as the

²⁶ In October of 2014, Karl Vannieuwerkerke was diagnosed with salivary gland cancer.

Red Cross), (13) government institutions (e.g. party-neutral advisory boards or institutions such as the World Health Organization), (14) celebrities, (15) medical personnel (specialist doctors, general practitioners, nurses, etc.), and a residual category (16) “other”.

Table 4-2. Overview categories for type/origin of health news sources

Chapter five	Chapter six	Chapter seven
Press agency	Press agency	***
Traditional media brand	Traditional media brands	~ News websites
Industry	Industry	Industry
Policy-makers	Policy-makers	Policy-makers
Sickness funds	Sickness funds	Sickness funds
Consumer organizations	Consumer organizations	Consumer organizations
Patient organizations	Patient organizations	Patient organizations
Academia	Academia	Academia
Assn of health professionals	Assn of health professionals and hospitals	Assn of health professionals and hospitals
Assn of non-health profs.	***	***
Ordinary citizens	***	***
Civil society	Civil society	Civil society
Government institutions	Government institutions	Government institutions
Celebrities	***	***
Medical personnel	***	***
Other	Other	Other
***	Personal/community website	Personal/community website
***	Media doctor websites	***
***	***	Social media

The same categorization applies in all four ensuing empirical chapters, albeit with a few small adjustments. For the sake of clarity, these minor differences will be presented in tabular form rather than as running text (cf. Table 4-2 above). The reason why adjustments were necessary in chapters six and seven concerns the friction between what is linkable online and what can be used as an offline news source. For example, a person cannot be linked to unless he or she has some sort of relevant web presence. Section 4.3.1 (below) will explain how these categories relate to the selection of respondents for chapter eight. Although the selection of respondents for chapter eight follows the same principles it will be discussed separately due to the inherent methodological differences between quantitative content analysis and qualitative interviews.

4.2.2 Best of both worlds: manual versus automated content analysis techniques

Assumptions about what news is, by whom it is produced, and how it is distributed to audiences, as well as how these various components are related is under heavy pressure with the advent of digitization (Sjøvaag & Karlsson, 2017) (cf. point 2.2.2). The terms ‘hybrid’ and more recently also ‘liquid’ have been suggested to deal with the blurring ontological boundaries of journalism

(Chadwick, 2013; Deuze, 2008b; Karlsson, 2012; Larsson et al., 2016; Lewis, Zamith & Hermida, 2013; Witschge et al., 2018). The expansion of online news into other online spaces through hyperlinking constitutes an obvious but notable example of the blurriness or liquidity of online journalism. But also the intervention of third-party intermediaries such as social media platforms or search engines which are integral parts of the Internet's "hyperlinked interconnectedness" create new circumstances for distribution (e.g. networked gatekeeping or way-finding) and production (e.g. citizen journalism and "produsage") thus again exemplifying the liquidity (or hybridity) of journalism today (Barzilai-Nahon, 2008; Bro & Wallberg, 2015; Bruns, 2008; Pearson & Kosicki, 2016; Singer, 2014; Sjøvaag & Karlsson, 2017, p. 89).

As the categories of journalism have changed, so too have the methods and tools that journalism researchers have at their disposal (Boumans & Trilling, 2015; Larsson et al., 2016; Sjøvaag & Karlsson, 2017). Increasingly, social scientists apply computational methods for coping with the enormous amounts of "Big Data" that are produced "by and about human activity, made possible by the growing number of mobile devices, tracking tools, always-on sensors, and cheap computing storage" (Lewis et al., 2013, p. 34). Yet, computational methods should not be considered as a panacea for the methodological challenges, small and large, involved in researching digital journalism. Choosing between either computational or manual research techniques always involves a trade-off between scale and depth (Larsson et al., 2016). Automated computational methods can collect and analyse huge amounts of data within a time-span that is not humanly possible, whereas manual techniques are more sensitive to the context of what is being researched and enable more detailed interpretive approaches. Therefore, a hybrid approach that "retains the strengths of traditional content analysis while maximizing the accuracy, efficiency, and large-scale capacity of algorithms" is proposed for unravelling the online health news sourcing process (Lewis et al., 2013).

4.2.2.1 *Collecting hyperlinks with the Web-based scraper VOSON*

In general, computational methods for content analysis unfold on two separate procedural domains (Larsson et al., 2016). Automation can help researchers either with collecting the content, which is called data-harvesting or Web-scraping (Welbers, Opgenhaffen & Janssens, 2018), or with coding the content (Trilling & Boumans, 2018). The advantage of using automated content analysis (ACA) for data-collection is that elements such as date of publication, title or the presence of hyperlinks, which are all easy to identify for computers on the basis of the underlying source code, can be collected swiftly, structured and in huge amounts.

The automated Web-based scraping tool VOSON that was used for the collection of hyperlinks in chapter seven already performed some of the most basic coding tasks (Ackland, 2011). Relying on a basic dictionary-approach (cf. Boumans & Trilling, 2015; Trilling & Boumans, 2018), VOSON is able to extract all the hyperlinks from any given webpage; to distinguish between internal and external links; to gauge the frequency with which a webpage links out to other webpages; and to identify the

TLD (e.g. '.be', '.uk', '.com', '.org', etc.) of the link as well as the link text (e.g. 'here', in 'click [here](#) for more information on link text'). Nevertheless, despite the advantages of ACA, substantial parts of the analysis in chapter seven were still performed manually²⁷. For chapter six, by contrast, the total N of the sample is much smaller than in chapter seven (i.e. 769 and 5428, respectively) because the coding and collecting was performed manually. In other words, the manual approach in chapter six indeed substitutes scale for depth.

4.2.2.2 *Visualizing hyperlink networks with Gephi*

Gephi was used to visualize the harvested hyperlinks in the form of a network. This software utilizes basic Network Analysis (NA) metrics for positioning websites (which are called 'nodes' in NA terminology) in a network that reflects a node's authority within that network by relying on the frequency and type of hyperlinks that run through this network (Jacomy, Venturini, Heymann & Bastian, 2014; Scott, 2017). While the visual output of NA software Gephi (cf. Figure 7-1) is certainly more appealing than tabular representations of the same data in SPSS, [R], excel or other statistical programs, the network representation applied here is particularly fertile since the core *raison d'être* of a hyperlink is to connect. Gephi thus *resurfaces* some of the contextual information that is lost in content analysis.

As a final remark, it should again be stressed that computational methods are not a cure-all replacement for the weaknesses of older manual techniques. Yet, on a practical level, hybrid approaches are still in an early phase. This implies that many research efforts are guided by a trial and error procedure. This is also true for the hybrid method applied here. Integrating the use of multiple tools and applying them to this dissertation was difficult. Consequently, the method (fruitfully) employed here is, nevertheless, subject to future optimization. In the meanwhile, researchers are encouraged to admit the "kludginess" of doing digital journalism research as long as they transparently and meticulously describe the methodological steps undertaken along the way so that others can learn from previous experiments with traditional methodologies (Karpf, 2012).

4.2.3 **Validity and reliability**

Replicability across time and space is a crucial element for almost any scientific investigation. For content analysis this is no different. In order to assure replicability, content analysis should meet the quality checks relating to the *validity* and *reliability* of the analysis (Riffe, Lacy & Fico, 2005).

²⁷ To develop a piece of code that takes into account the wider context of the link on the seed site as well the context of landing pages is not impossible, yet would require highly advanced coding skills which most social science researchers do not (yet) possess (cf. Sjøvaag & Karlsson, 2017, p. 91). Additionally, such a code would be very idiosyncratic and it would therefore run the risk of becoming obsolete even before the research is completed due to alternations in the underlying computer code of the websites under scrutiny. For a concrete example of the challenges involved in devising *ad hoc* tools, see De Maeyer (2013, p. 127).

4.2.3.1 *Sample validity (representativeness)*

The sample *validity* refers to the capacity of the dataset to adequately represent the total population of “potentially *codable content*” (Lacy & Riffe, 1996, p. 963, *cursive original*). Because it is practically unfeasible to include the complete population of Flemish health news in the analysis, a representative sample was composed. In order to avoid overlap, this general methodological section will transcend the individual chapters by highlighting aspects of the sample in its totality.

As a consequence of the centrality and the ever-increasing importance of digital media in people’s overall news diet, a strong emphasis on digital health news is almost inevitable. Nevertheless, since traditional print and broadcast media are still consumed by large parts of the Flemish population (especially people aged 50 and over) (cf. Digimeter, 2017), and since these media still hold substantial intermedia agenda-setting power (e.g. Harder, Sevenans & van Aelst, 2017; Vonbun, Kleinen-von Königslöw & Schoenbach, 2016), traditional media cannot be ignored. Consequently, given the wide range of media types covered by the news brands included in the sample, the three waves of content analysis provide a rich and representative sample of health news as it occurs in various shapes and forms across the contemporary hybrid media system. The selection criteria for including individual media brands are explained in more detail in the respective chapters. Additionally, appendix 1 (p. 217) provides a more detailed summary of the distinct datasets.

4.2.3.2 *Reliability of the analysis*

Once the *validity* of the sample on which to conduct the analysis is established, it logically follows that the *reliability* of the analysis itself be thoroughly checked (Riffe et al., 2005; Krippendorff, 1980; Neuendorf, 2002). Hence, *reliability* pertains, not to the sample, but to the coding protocol (or code book), the concrete coding or registration sheet, the training of the coders and the statistical analyses that are performed. In what follows, the procedure for ensuring the reliability of this content analysis will be described as accurately and transparently as possible so that the overall replicability of the analysis presented in the empirical section can be assessed independently by anyone who reads this dissertation. This description will consist of two parts. Firstly, a brief review of the variables and what they are intended to measure will be provided. Secondly, the coder-reliability will be presented²⁸.

On a final note, it should be mentioned that the coding protocol described in this section and in appendix 2 is the result of repeated pre- and re-testing of the variables with 3rd year bachelor students

²⁸ The automated coding of manifest attributes of hyperlinks in chapter seven was **not** retested manually to check whether computer coding was accurate. There are two reasons for this. First, on two separate occasions two personal meetings were arranged with the developers of VOSON. Hence, instead of putting effort into the training of human coders, familiarity with the internal workings of the VOSON software was deemed a sufficient guarantee for reliability. Second, as the automated coding focused on manifest features of the link (i.e. dictionary approach), rather than on latent meanings or more interpretive categories, additional reliability checks were not deemed necessary.

over the course of two subsequent academic years (i.e. 2013-2014; 2014-2015). This collaborative phase of trial and error greatly informed the development of the codebook.

4.2.3.2.1 Variables and levels of analysis

The variables operationalized in chapters five, six and seven pertain to three separate dimensions: (1) formal identifiers, (2) subject/topic/disease (3) and source use. First, general characteristics of the news item such as publication date, length, format (e.g. opinion, news analysis, interview, etc.), name of the media brand and media type, which mainly serve as formal identifiers for the news items, were coded. Secondly, albeit not the focus of this dissertation, news items were also coded for type of disease, type of treatment perspective (curative, preventative, medication, self-help/lifestyle changes) and presence of specific story elements. The results of this exploration are reported separately (Stroobant et al., 2016; De Dobbelaer, Stroobant, Deprez, Van Leuven & Raeymaeckers, 2016). Thirdly and most importantly, the news items were coded for source use. This was done in two steps. After identifying the number of sources per story (i.e. unit of analysis is the entire news item), the coding continued on the level of the news source in order to quantify exactly which actors and organizations get a voice. The main unit of analysis in this content analysis is thus the source (or hyperlink for the digital news). Yet variables on the level of the article were also included to inform the analysis, e.g. number of sources per news article, media type from which a given news item is drawn, etc.

4.2.3.2.2 Reliability of the coding: Intra-Coder-Reliability

The Cohen's (1960) κ (kappa) coefficient was chosen as mathematical reliability measure throughout this dissertation because it takes into account both the complexity of a variable (i.e. the number of values) and the possibility that coder agreement occurs by chance (Riffe et al., 2005; Lombard, Snyder-Duch & Bracken, 2002, 2003). In general, either the *inter*-coder reliability or the *intra*-coder reliability (or both) can be calculated. The difference between the two is that *inter*-coder reliability measures the agreement among various coders, whereas *intra*-coder reliability or coder stability measures the internal consistency of one coder at two different points in time (Neuendorf, 2002, p. 163; Riffe et al., 2005, p. 145). The reliability scores that the Cohen's kappa coefficient calculates range from zero to one, with zero indicating total lack of agreement and one indicating perfect agreement. When judging whether a reliability score is sufficient, one should take into account the nature of what is being studied (i.e. depending on the topic a larger or smaller margin of error may be required) as well as the interpretive complexity of what is being measured. However, as a general rule, scores equal to or higher than 0.80 indicate good agreement. Scores between 0.80 and 0.667 still allow for tentative conclusions, but again, this is also dependent on the nature of what is being measured (Krippendorff, 1980, p. 147; Neuendorf, 2002, p. 143).

Initially, in order to reduce the workload, the protocol for this analysis was set up so that the coding for chapter five would be performed by three coders (i.e. myself, a colleague researcher and one

student). However, after calculating the *inter-coder* reliability after an initial round of coding, low scores were observed for the variables relating to the coding of the sources (but not the other two dimensions). Although the underlying cause was quickly discovered, logistical constraints prompted a continuation of the analysis of the sourcing part with a single coder. Practically, this implies that the complete set of 981 news items in the first explorative comparative content analysis of chapter five was reread and recoded for the variables relating to the number of sources per article and to the source category (cf. point 4.2.1.3).

The problem was that one student also interpreted paraphrased information from secondary sources as an original news source. Notably, this occurred in longer magazine or lifestyle-oriented items in which patients are given ample opportunity to tell their story. In these longer narrating print stories, patients often reproduce information they receive from doctors and other medical personnel. However, from the structure of these articles it is clear that the doctor (whose words are paraphrased or cited by the reader-patient interviewee) did not serve as an original news source. That such sources were not consulted by the journalist directly constitutes the most important reason why this kind of paraphrases fall beyond the definition of news source as applied in this dissertation. Secondly, as argued in point 4.2.1.2, the possibility that patients misinterpret or simply do not understand what doctors are telling them is real. Even though this issue yielded only marginal differences due to the overall low share of news items in which this interpretive error could occur, this fundamental conceptual discrepancy was deemed substantial enough to partially replicate the analysis. Therefore, rather than reporting *inter-coder* reliability which measures the mathematical agreement among different coders for each variable, *intra-coder* reliability or coder stability is reported in chapters five, six and seven. For matters of practicality, Table 4-3 provides a comprehensive overview of reliability scores (cf. appendix 6).

Table 4-3. Overview of intra-coder-reliability scores per chapter

	% of the total N	Range scores
Chapter 5	(300/1998) \approx 15% of total N	0.78 - 0.87
Chapter 6	(130/769) \approx 17% of total N	0.72 - 1
Chapter 7	100%	0.87 - 0.96
Chapter 7(bis)	(38/254) \approx 15% of total N	0.84 - 1

Reliability calculations involve substantial re-coding of the dataset in order to establish a basis for comparison (between two periods in time, or between several coders). The literature suggests relative proportions ranging from 5% up to 25% from the total sample as a minimal reliability sample (Riffe et al., 2005, p. 146). Nevertheless, for smaller sample sizes, larger proportions of the total require recoding. Hence, the decision to recode the complete sample of hyperlinks (N=254) in chapter seven. In order to estimate the effect of the size of the reliability sample, reliability for chapter seven was

computed again here with a smaller reliability sample. As illustrated in Table 4-3 (above), only marginal differences appear.

Besides the sample size, alternations in the sampling method of the reliability sample (i.e. probabilistic or purposive) may also influence reliability outcomes (Krippendorff, 1980; Riffe & Lacy, 1996). In point 4.2.3.1, the sample validity was explained through its relation vis-à-vis the whole population of “all possible *codable content*” (Lacy & Riffe, 1996, p. 963, *cursive original*). Yet, the sample becomes the population when constructing a probability sample for calculating coder reliability (Lacy & Riffe, 1996, p. 963, *cursive original*). While validity is an absolute requisite for the complete content analysis sample, there is no consensus in the literature on whether the reliability sample should be composed to reflect the complexity and diversity of the total coded sample (Lacy & Riffe, 1996). Following Krippendorff (1980), this dissertation has applied non-probabilistic random sampling procedures for composing reliability samples.

4.3 Qualitative semi-structured elite interviews

4.3.1 Sampling respondents (health stakeholders and media professionals)

As indicated in point 4.2.1.3, news sources are operationalized somewhat differently in chapter eight. A first important difference is that the selection of respondents in chapter eight draws from a health sociological stakeholder mapping of the Belgian healthcare system²⁹ (Van den Bogaert, Stroobant & Bracke, 2018). As stipulated in the biomediatization framework, health and medicine are deeply intertwined (Briggs & Hallin, 2016). Hence, media are also considered as potential stakeholders in the Belgian healthcare system. However, in order to preserve terminological consistency with the previous empirical chapters, the analytical distinction between the realms of media and health will be retained. Concretely, this means that the term ‘media professional’ will be used for those actors that centrally pertain to the domain of media, e.g. editors and journalists; whereas the term ‘health professional’ will be used to refer to those organizations one would not typically define as media. For instance, while many health stakeholders have large communication departments and employ full-time communications officers, they will still be collectively referred to as ‘health stakeholders’. As such, this dissertation performs its own type of boundary-work in order to stabilize the hybridity of the lived experience of the respondents through the introduction of analytical categories that suggest a boundary between the realms of health and media (cf. point 3.2.2).

This stakeholders mapping yielded a total of six categories of potential health stakeholders in addition to the somewhat peculiar stakeholder of media. Table 8-1 provides a detailed overview, yet for matters of practicality, the categories of stakeholders that were identified and from which

²⁹ This stakeholder mapping is the central focus of the dissertation in health sociology of Sarah van den Bogaert whose research is also part of the same project, i.e. (De)constructing health news, that also overarches as this dissertation.

respondents were subsequently recruited will be repeated here: (1) pharmaceutical industry, (2) government institutions, (3) sickness fund agencies, (4) patient and consumer organizations, (5) organizations of scientific medical experts, (6) associations of health professionals. Ultimately, these categories were taken to represent in large part the potential pool of sources from which journalists can draw. As an additional quality check, the categories that emerged from the stakeholder analysis were discussed with an expert of the Belgian healthcare system (now retired) to make sure that no important actors were overlooked.

All 36 interviews were conducted and transcribed by health sociologist, Sarah van den Bogaert, with whom an intense collaboration was set up in order to complete the analysis for chapter eight. This was in the first place necessary to get familiar with both the content but also importantly with the context of the interview. For instance, did respondents adopt an open attitude? Were they in a hurry? Were they interested in the research? Were they nervous or relaxed? In short, this was important for acquiring information that is not easily deducible from the interview transcripts alone. The analysis of the interviews reported in chapter eight, in other words, is the result of an interdisciplinary collaboration between journalism studies and health sociology. Apart from formal moments of joint coding, the analysis in chapter eight is also informed by numerous informal discussions between the researchers. This was possible because, even though both researchers pertain to academic disciplines that are formally and institutionally separate, the researchers shared an office space.

The interviews are complementary to the quantitative content analyses in this dissertation because interviews provide insight into aspects of the news production process that cannot be traced in the news text. For instance, interviews can shed light on why particular sources appear in the news (while others do not) or on the motivations for covering a particular issue (while ignoring others). At the same time, the interviews also questioned the respondents' perceptions of each other as well as the nature of the relationship between the various stakeholders.

Finally, in order to avoid overlap, no further details of how the analysis was performed will be specified here. Instead, a full description of the analytical procedure can be found in the methodological section of chapter eight.

4.4 The added value of a (hybrid) mixed methods research design

Mixed methods research designs are relatively new but have already entered a large number of disciplines, e.g. sociology, anthropology, communication, etc. (Creswell, 2014; Johnson, Onwuegbuzie & Turner, 2007). Originating somewhere around the late 1980s and early 1990s, mixed methods – alternatively also referred to as “integrating”, “synthesis”, “quantitative and qualitative methods”, “multi-method” or “mixed methodology” (Creswell, 2014, p. 217) – are defined as the third research paradigm within the social and behavioural sciences (Johnson, Onwuegbuzie & Turner, 2007). The research design in this dissertation will be called “mixed methods” rather than any of the

other aforementioned terms, in accordance with the most recent trends in the literature (Bryman, 2006; Creswell, 2014; Tashakkori & Teddlie, 2010).

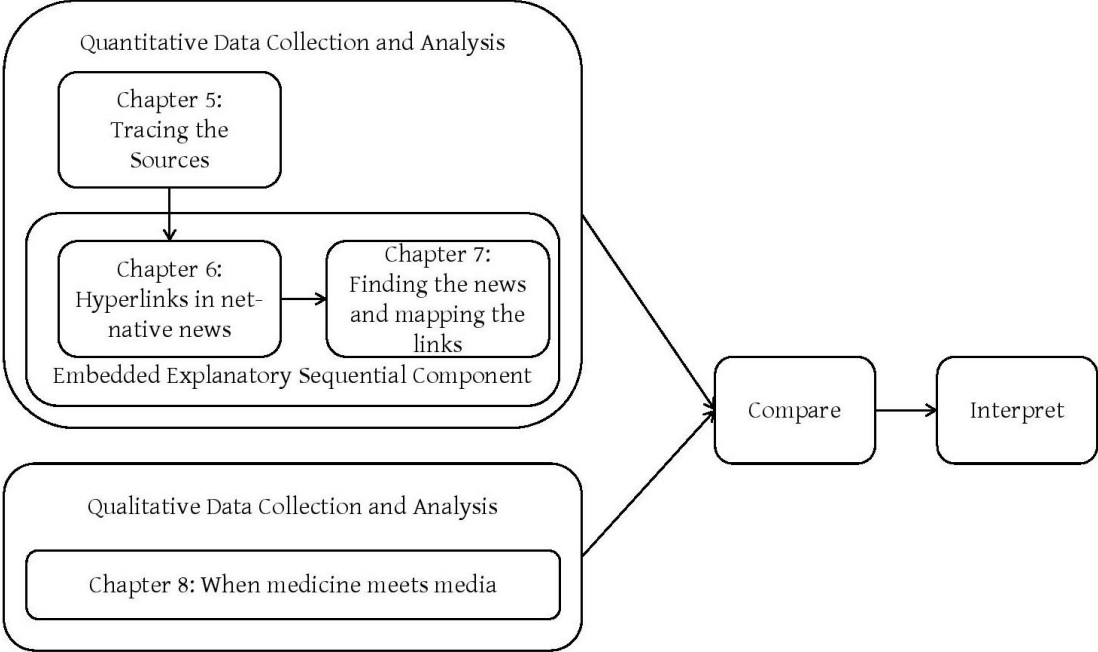
Essentially, mixed methods research designs combine quantitative (closed-ended) and qualitative (open-ended) research techniques. Definitions stress that combining or “mixing” methods does not imply a mere accumulation or juxtaposition of distinct methods but rather implies that the investigation is integrative, i.e. different kinds of data are embedded and merged so that they inform a single research problem from various sides (Boczkowski & Siles, 2014; Creswell, 2014; Johnson et al., 2007). In other words, mixed methods joins the strengths of different research methods to find a stronger answer to specific research problems while at the same time overcoming the limitations associated with using only one method (Boczkowski & Siles, 2014; Creswell, 2014). Additionally, mixed method research designs extend our scholarly gaze because they rupture the traditional “silos” or “quadrants” of journalism research, i.e. “production/content, consumption/content, production/materiality, and consumption/materiality” (Boczkowski & Siles, 2014, p. 57).

The traditional, often taken-for-granted (and therefore exceedingly persistent) epistemology of journalism as a meaning-making process that centres around the involvement of human actors who hold a monopoly on infusing this process with meaning has called into being a division of labour that is associated with specific theoretical, methodological and empirical foci (Boczkowski & Siles, 2014; Neff, 2015). Proponents of the material turn in journalism studies explicitly refute the idea that social change is the exclusive product of human interaction, interpretation and concomitant practices, instead arguing for a theoretical “cosmopolitanism” that embraces a relational understanding of technology and news production (Anderson & De Maeyer, 2015; Boczkowski & Siles, 2014, p. 53). Materiality scholarship explains social change as “co-produced” or “mutually shaped” by contingent networks of human actors and technologies (Boczkowski & Lievrouw, 2008, p. 966). The traditional sender-message-receiver triad, albeit losing ground in journalism theory, still seems to persist in the methodological realm, thus preserving common divisions of labour, i.e. surveys for audience research, newsroom ethnography for news routines (Boczkowski, 2015). Consequently, proponents of the material turn in journalism embrace a “methodological cosmopolitanism” so that “relevant issues” across and beyond the four quadrants can be included in the analysis (Boczkowski & Siles, 2014, p. 67).

The “(methodological) cosmopolitanism” of this dissertation is embodied in the combination of a quantitative analysis of news sources both on-and offline as they appear in the news *content* with a qualitative investigation by means of interviews into the context of news *production* (Boczkowski & Siles, 2014, p. 67). Furthermore, the strong empirical focus on hyperlinks and search engine algorithms, expand the idea that “sources make the news” by assigning agency also to technologies (Anderson & De Maeyer, 2015; Boczkowski, 2015; Boczkowski & Siles, 2014; Gillespie, 2014; Lievrouw, 2014). As a consequence, the mixed method design in this dissertation actively bridges the gap between the production/content and production/materiality quadrants as well as between a focus

on content as a stand in for the production process and the production process itself as it experienced by those who are centrally involved in the production of health news, i.e. journalists and sources.

Figure 4-2. Procedure for convergent parallel mixed methods design



The type of mixed methods design in this dissertation is a *convergent parallel design* with an *embedded sequential quantitative explanatory component* (Creswell, 2014, p. 220). Schematically represented in Figure 4-2, the two blocks of parallel concurrently collected and analysed quantitative and qualitative data sets constitute the backbone of the empirical design. In order to unravel how health news is co-produced thus trying to incorporate the “nexus of contingencies” that surround this complex process (Johnson et al., 2007, p. 129), the aim of a parallel convergent model is to collect data that are different but which are nevertheless informed and structured according to the same research questions (Creswell, 2014). The quantitative and qualitative data sets, for example, both hinge on *news sourcing* as central theoretical concept and are informed by a *material gaze upon biomediatization and traditional analyses of news production*. As such, both types of data, which were collected around the same period, are analysed independently (in different journal articles) and are then subsequently put together in this dissertation to see how the two datasets converge, diverge or complement each other.

However, embedded within the quantitative component, an organic sequential explanatory expansion developed in response to the findings of the large-scale comparative quantitative content analysis. This means that, contrary to other types of mixed methods designs that are sequential in

nature, i.e. the first type of data is collected and analysed and then informs a new wave of data collection, the qualitative and quantitative blocks were set up with the same goal in mind (i.e. unravelling the co-production of health news) but are independent. Nevertheless, embedded within the quantitative building block, follow-up research was conducted in order to explain the intricacies of online sourcing in various types of online health news. Put simply, this means that chapters five and eight independently look at different facets of the co-production of health news, while chapters six and seven are conceived as following-up on the results of the large-scale content analysis of news sources in chapter five.

5 TRACING THE SOURCES

A comparative content analysis of Belgian health news

Abstract

This article explores health journalists' sourcing patterns in the Dutch-speaking part of Belgium across a range of different media including newspapers, magazines, radio, television and online health news websites. A cross-sectional quantitative content analysis of health news items collected in February 2015 (N= 981) was established to examine the number and origin (e.g. industry, citizens, experts) of sources (N= 1998) mentioned in health news stories with particular attention paid to differences across various media types. Despite recent claims of media convergence, cross-media comparisons are scarce and, for a specialized beat such as health, nonexistent. The key findings of this study indicate that ordinary citizens and academic experts constitute the two largest source categories. The small share of industry-related sources confirms journalists' sceptical attitude towards content provided by the industry. But on closer inspection, large differences can be observed across various media types. On the one hand, ordinary citizens occur with relatively high frequency on television but hardly make an appearance in online news items. Academic sources, on the other hand, are dominant online but nearly absent in television news items. In sum, this analysis demonstrates that health journalists' source uses differ across various media platforms.

Keywords

comparative content analysis; health news; journalism practice; online; print; radio; sourcing; television

Reference

Stroobant, J., De Dobbelaer, R. & Raeymaeckers, K. (2018). Tracing the Sources: A comparative content analysis of Belgian health news. *Journalism Practice*, 12(3), 344-361. <http://dx.doi.org/10.1080/17512786.2017.1294027>

5.1 Introduction

The relationship between a journalist and her or his sources is at the heart of journalism practice (Broersma and Graham 2012; O'Neill and O'Connor 2008), but varies across different stages of the news production process (Franklin 2011; Reich 2009). During the news discovery phase, on the one hand, sources can trigger story ideas thus setting the agenda by raising awareness for specific issues (Grilli, Ramsay, and Minozzi 2002; Nielsen and Nordestgaard 2015; Wallington et al. 2010). During the news-gathering phase, on the other hand, sources can provide perspective or add depth to a story (Tanner, Friedman, and Zheng 2015; Wallington et al. 2010). In other words, media do not only have the ability to tell us what issues to think about, but also how to think about those issues (McCombs [2004] 2014). The study of news sources is therefore inextricably linked to questions of agenda-setting (what) and framing (how). More specifically with reference to health coverage, previous research suggests that mass media have the power to alter public perception of health and illness (Nielsen and Nordestgaard 2015). For example, media reports in which conflicting expert opinions are juxtaposed tend to influence the public's risk assessment (Dixon and Clarke 2013; Holton et al. 2012). While the professional values of neutral and balanced reporting would encourage journalists to hear both sides (Kovach and Rosenstiel 2001), in cases where scientific evidence is conclusive—e.g. MMR vaccine controversy is a hoax (Flaherty 2011; Holton et al. 2012), smoking causes cancer (Song et al. 2009)—balanced reporting may negatively influence the public's perception of the risks involved in, for example, smoking or vaccination (Zillmann 2006).

While there exists a large body of both theoretical and empirical research into journalistic sourcing practices, cross-media comparative research is largely missing. In fact, most comparative research contains cross-national comparisons rather than comparisons between different media types (e.g. Dimitrova and Strömbäck 2009; Tiffen et al. 2014). Previous empirical studies, be it interviews (Hinnant, Len-Riós, and Young 2013; Tanner, Friedman, and Zheng 2015), surveys (Wallington et al. 2010), reconstruction interviews (Reich 2016), or content analysis (De Keyser and Raeymaeckers 2012; Tiffen et al. 2014; Van Leuven 2013), are seldom set up from a cross-media comparative perspective. Such comparisons, nevertheless, could have great merit in times when media environments are converging (Reich 2016). Media companies increasingly distribute their stories through various platforms (Dwyer 2010), but does this mean that exactly the same content is simply repurposed for other media types? While most research efforts focus on a comparison between print and online dailies (e.g. Maier 2010), this analysis examines a more complete spectrum of media types, ranging from hourly radio news bulletins to monthly print magazines.

By setting up a quantitative content analysis that incorporates print, broadcast, and online media, which focuses on a specific beat, we aim to shed light on how health stories are sourced across different media types. Since content analysis is an ideal tool to assess the richness of news sourcing as perceived by the audience (Gupta and Sinha 2010), this study sets out, first, to explore which sources

are frequently used in health news, and secondly, to discover whether sourcing health news varies across different media types. The results of our analysis will mainly be discussed in the specific context of health news. In the conclusion, however, some findings that seem to bear relevance beyond the context of health reporting will be given further attention, i.e. general trends with regard to the number of sources used per news item, the framing of expertise, and the occurrence of citizen sources. Given the explorative nature of this study, no explicit hypotheses are put forward.

5.2 Sourcing the news

In this paper, “sources” are not only used to refer to “*people* who reporters turn to for their information, often officials and experts connected to society’s central institutions” (Berkowitz 2009, 102, italics added), but also to material resources provided by news agencies, other media brands, websites, academic journals, etc. The sourcing process, when stripped down to its essentials, is governed by, on the one hand, considerations of effectiveness, and on the other hand, by a shared professional ideology (Berkowitz 2009). From the first dimension it follows that in order to meet deadlines, journalists systematically prefer highly authoritative sources. Their constitutional role, as well as their human and financial resources, imbue these sources with a sense of authoritativeness which grants them credibility. Consequently, using these sources requires less strict verification and cross-checking procedures which facilitate the uptake of these sources in the news. Secondly, practical considerations seem to coalesce with a professional code of conduct that stipulates reporting should be neutral (Kovach and Rosenstiel 2001). Journalists do not present their own opinions, but gather the opinions of those who matter. Put differently, ideological and practical determinants in the news production process systematically privilege news access for a narrow range of highly authoritative and powerful sources (Cottle [2003] 2006).

The recent “crisis in journalism” is argued to further facilitate news access for those elite sources (Franklin 2011; O’Neill and O’Connor 2008). The rise of public relations, changing business models, and increased competition due to new distribution platforms such as Facebook and Google that are poaching advertising revenue from traditional news organizations (Broersma and Graham 2012; Franklin 2011; Pearson and Kosicki 2016) create circumstances in which reporters become more and more dependent on information subsidies (Gandy 1982). This refers to ready-to-use bits of information usually stemming from news agencies or public relations professionals. Systematic usage of the latter with less time for cross-checking makes our news vulnerable to possible bias (Matthews 2013). Furthermore, increased reliance on information subsidies privileges elite definitions of reality because it is predominantly those elite sources who possess both the resources and “communicative know how” (Reich 2015, 777) required for the production of effective public relations content. Consequently, as the already privileged position of elite sources becomes even stronger, the civic adequacy of journalism might no longer be guaranteed if source diversity diminishes (Franklin 2011).

5.2.1 Elite sources: Advocates and experts

Elite sources are by no means a homogenous group. Following Deacon and Golding (1994, 15–17), elite sources can be subdivided into “advocates” and “experts”. The former refer to sources which promote their own agenda, e.g. politicians want to sell their point of view, companies want to sell their product, patient organizations want to raise awareness for a specific disease. The latter refer to sources that serve as arbiters of the advocates’ opinion. Moreover, the perceived neutrality of experts makes them ideal to help journalists make nuanced evaluations of the advocates’ opinions (Cottle [2003] 2006). Despite the routinized access of elite sources, as discussed above, reporters are aware of advocates’ vested interests, but will happily include an expert source to enhance the credibility of the news item. For instance, health journalists are very skeptical about using public relations content stemming from the food or pharmaceutical industry (Hinnant, Len-Riós, and Young 2013; Morell et al. 2015; Tanner, Friedman, and Zheng 2015; van Trigt et al. 1994; Wallington et al. 2010).

In fact, the distinction between advocates and experts bears significant relevance to health news. There are two reasons why journalists rely on expert sources to construct their stories. First, since journalistic ideology prescribes that reporting should be neutral, free from the journalists’ own personal stance, experts can serve as “compensatory legitimizers” (Albæk 2011, 338; Remus 2014). In this scenario, the reporter takes up an active role, carefully selecting the expert whose opinion will fit the frame that the journalist has decided upon beforehand. In a second, more interactive scenario, our increasingly complex modern knowledge society forces reporters to call in the aid of experts (Giddens 1990). Journalists are dependent on these experts to explain and to help them interpret particular issues and events (Albæk 2011). Additionally, the demand for expert voices might also be fuelled by the fact that specialized beats are often the first to be affected by cost-cutting measures such as staff reductions (PEJ 2008). As a consequence, specialty areas, such as health, are sometimes covered by journalists who possess no specific knowledge, while at the same time having additional duties in the newsroom, e.g. repurposing television news items for the organization’s website (Tanner, Friedman, and Zheng 2015).

5.2.2 Non-elite sources: Tensions between news values and effective public health communication

Notwithstanding the privileged news access for elite sources, ordinary citizen sources have an important role to play in health news (Turner 2010). Their contributions often serve as “exemplars” to complement expert interviews and to enliven dry statistical information (Hinnant, Len-Riós, and Young 2013). Exemplars are individual citizens’ subjective accounts of health and illness, e.g. cancer patients talking about how they experienced chemotherapy. From a public health communication perspective, exemplars are considered a powerful persuasive strategy because drawing the audience’s attention through the use of exemplars is a necessary prerequisite for effectively getting across public

health messages to large proportions of the population (Zillmann 2006). Appeals to people's emotion may trigger large-scale awareness and, provided that coverage accurately describes risks, symptoms, and treatments, may enhance health literacy (Goldacre 2007; Tong et al. 2008). Somewhat paradoxically, however, news values such as emotion and drama are associated with journalism of poorer quality (Gans 2009). The overuse of emotional exemplars, over-dramatization, and sensationalism can give rise to disease-mongering, in which case people are falsely alarmed about possible health threats (Moynihan, Heath, and Henry 2002; Ransohoff and Ransohoff 2001, Stroobant, 2018b, May 2). Additionally, the selection of anecdotal testimonies contributes to unusual situations becoming "normal" or "common practice", thus conveying inaccurate information (Hinnant, Len-Riós, and Young 2013). Therefore, lay narratives which constitute a powerful persuasive strategy in conveying public health information should be used selectively and in proportion to the actual health risk (Gupta and Sinha 2010; Zillmann 2006).

In health news, the uptake of ordinary citizens has hardly received any attention. Research focusing on other news beats found that the input of citizen sources is still limited compared to that of elite sources (De Keyser and Raeymaeckers 2012; Hopmann and Shehata 2011; Reich 2015). Reich (2015) identifies three reasons why citizens still rarely serve as news sources. First, there is an evaluative barrier because citizens' contributions are deemed less credible by journalists, hence the reliance on legitimizing expert voices. Secondly, logistical barriers indicate that including citizens requires greater journalistic effort, while resources to do so are not always available. Ordinary citizens' contributions need to be fact-checked and revised because they do not possess "communicative knowhow". Moreover, in the case of health news, finding individual cases may be hindered by ethical constraints with regard to patient privacy (Hinnant, Len-Riós, and Young 2013; Hodgetts et al. 2008). Thirdly, circumstantial barriers refer to the fact that "situations calling for citizen input arise ad hoc" (Reich 2015, 773) and therefore prevent citizens from becoming routine sources.

5.2.3 Comparative research of sourcing practices

Contrary to the generic approach to news sourcing which assumes that all journalists alike are subject to the same extra-journalistic forces (e.g. the introduction of new technologies) because they pertain to the same institutional field and share the same cultural capital (e.g. similar perception of what constitutes "good journalism", which news values to adhere to) (Benson 2006) regardless of the media type and beat they work for, the particularist approach suggests that each media type adheres to specific idealized models of reporting that resonate with the specific features of that medium (Reich 2016). In other words, the latter do not claim that different media types merely embody different packaging and distribution "factories" in the later stages of news production, but that editorial idealization associated with different types of media (and not just technological aspects) also informs the earlier stages of the news-making process, namely sourcing practices.

For instance, both Tiffen et al. (2014) who try to identify sourcing patterns in different types of media across 11 European countries, and Reich (2016) who does the same in the Israeli context, consistently find that television news on average contains more news sources per news item than print, radio, and online news. In terms of which sources are preferred, Hopmann and Shehata (2011) suggest that the visual nature of television encourages the use of citizen sources such as testimonies and vox pops which are also cheap (Beckers, Walgrave, and Van den Bulck 2016), while Tiffen et al. (2014, 385) demonstrate that news websites prefer expert sources. Additionally, more intrusive subjects, i.e. topics having a direct influence on ordinary citizens' daily lives, such as welfare or health, are more likely to contain citizen sources than abstract issues (Hopmann and Shehata 2011; Vandenberghe, d'Haenens, and Van Gorp 2015). Finally, Reich (2016) also found that immediate media (i.e. radio and online) contrary to daily media (i.e. newspaper and television) on average rely on fewer sources to construct a news item, and that the former due to their shorter news cycles more often rely on other traditional media brands as news sources which might be a symptom of intermedia agenda-setting (Maier 2010).

5.2.4 Comparative research of sources in health coverage

Interestingly, while scholarly attention in the field of journalism studies mostly focuses on sourcing practices in general, political or foreign news (e.g. De Keyser and Raeymaeckers 2012; Van Leuven 2013), sourcing practices in specialty beats such as health are largely overlooked. In fact, many content analyses of health coverage are set up from a purely medical science or public health communication perspective. Similarly to content analyses within the field of journalism studies, these empirical accounts mostly focus on one particular medium, mostly print newspapers, or one specific case (Bubela and Caulfield 2004; Entwistle 1995; Hernandez et al. 2011; Hilton and Hunt 2011; Husemann and Fisher 2015; Schwartz et al. 2012). Two possible explanations can be identified. Firstly, electronic databases containing archives of media items often exclusively contain print. Hence, retrieving broadcast media is laborious and time-consuming because no digitally searchable databases are available. Similarly, collecting internet news items can be complicated given the ephemeral and highly dynamic nature of online news. Secondly, besides practical considerations, these studies do not assume that print, broadcast, and online content would in any way differ and, hence, pay little attention to comparing various media types. Consider the following quote which illustrates a somewhat robust conception of news work:

There is no reason to suppose that the media coverage in these sources [i.e. television, internet, and radio] would differ substantively since media stories tend to be recycled. (Hilton and Hunt 2011, 944)

Additionally, the few health news content analyses which do include different media types rarely focus on which information sources the reporter has used to construct the news item. Instead, these studies explore thematic aspects deemed relevant for effective health communication, for example, how are statistical results presented, mention of risks, and treatment and prevention options, with limited attention for differences between media types (e.g. Ostergren et al. 2015). Hence, content analyses comparing print and online news coverage of health issues (e.g. Ostergren et al. 2015), or print and television news (Atkin et al. 2008; Tong et al. 2008) are scarce and limited in scope, often containing small sample sizes and focusing on one specific topic. For example, Tong et al. (2008), whose total sample of 221 media items contains only seven television news items, do not focus on possible differences between the portrayal of chronic kidney disease on television and in newspapers. Ostergren et al. (2015), who compare media portrayals of genetic research on addiction in leading print media (magazines, newspapers, and medical websites) find no major differences between internet and print. Both print and online, Ostergren et al. (2015) conclude, present the news as overly positive with no or brief mentions of risks, and ethical and social consequences.

Atkin et al. (2008), however, who compare breast cancer news coverage in magazines ($N= 22$), newspapers ($N= 84$), and television ($N= 123$), do find differences between media types but do not explicitly discuss these differences, suggesting that the authors do not consider them relevant. Atkin et al. (2008) found that 40 percent of televised news reports on breast cancer prevention contain personal narratives by patients, contrary to 12 and 25 percent in magazines and newspapers, respectively. Verhoeven (2008), who diachronically compared the frequency of expert and lay sources in medical television broadcasts in the Netherlands between 1961 and 2000, noted a strong rise in the presence of lay people. Speaking time of lay people (46.1 percent) even exceeds that of medical experts (21.9 percent) (e.g. doctors and scientists) in 2000, while before experts were allotted most speaking time (54.7 percent). Television news items seem particularly well-suited for the inclusion of lay narratives. Yet Verhoeven, notes that the rise of lay people's voices in television news does not mean that "the lives of the lay people are actually at issue, nor their everyday knowledge and context" (471). Instead, he suggests that lay narratives merely serve as journalistic tools to add a human touch to the story, in line with news values such as emotion and identification that serve to enhance the appeal of news items to a broad audience.

In fact, many health coverage content analyses seem to indicate that ordinary patients play an important role in the portrayal of health issues. Atkin et al. (2008), for example, find that overall sources of information in the news items are dominated by medical experts (68 percent) and personal cases (40 percent). Similarly, Husemann and Fisher (2015), in their content analysis of press coverage of the H1N1 influenza pandemic in Germany (2009–2010), find that 48.6 percent of news items contain case reports of individual patients or small groups of patients. However, the presence of lay narratives in health news items is not always guaranteed, but instead depends on the nature of the disease. Clarke (2006) demonstrates that Canadian and American leading print magazines in their

portrayal of Alzheimer's disease almost never give a voice to the patient. Similarly, Tong et al. (2008) show that media coverage of chronic kidney disease in Australia is dominated by medical experts (42 percent), health advisory groups (24 percent), and government officials (15 percent); lay people, on the contrary, account for a mere 6 percent of the total source pool.

5.3 Methodology

The media titles under scrutiny in this content analysis (Neuendorf 2002) are selected with two criteria in mind. First, we include different media types, i.e. not only traditional print media but also online content, television, and radio broadcasts, in order to shed light on particularist versus generic approaches of news sourcing. Secondly, circulation numbers published by the Centre for Information about the Media (CIM 2014) were checked for readership size. Titles with a very high and more limited reach ranging between 479,600 and 2,420,600 were included so that both general-interest news and more niche content was represented.

This led to a selection of 35 individual media titles: five newspapers (*Het Laatste Nieuws*, *Het Nieuwsblad*, *De Standaard*, *De Morgen*, and *Metro*), 10 magazines (*Dag Allemaal*, *Libelle*, *Flair*, *Vitaya Magazine*, *Eos*, *Body Talk*, *P-Magazine*, *Plus Magazine*, *Knack*, and *Humo*), 14 television programs (*Het Nieuws*, *Telefacts*, *Straffe Verhalen*, *Het Spreekuur*, *Het Journaal*, *Ook Getest op Mensen*, *Reyers Laat*, *Bart & Siska*, *De Zevende Dag*, *Terzake*, *Koppen XL*, *Koppen*, *Het Journaal op Canvas*, *Café Corsari*), four radio broadcasts (*Nieuws (Q-music)*, *Nieuws (Radio 1)*, *De Ochtend*, *Vandaag*), and two health news websites¹ (www.gezondheid.be, www.gezondheidenwetenschap.be). 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 35 titles were then manually scanned for health-related content during the period of one month, i.e. February 2015. For reasons of practicality, a period of 28 consecutive days was chosen rather than a sample that consisted of constructed weeks spanning a more extensive period. Since only 12 out of 35 titles included here are available in keyword-searchable online databases, a live media monitoring over a period of one month was chosen. This does not, however, jeopardize the validity of the sample. Firstly, while the emphasis on one specific time-frame during winter might introduce a seasonal bias in terms of covered topics—i.e. no articles about treating sunburn, but many about flu prevention—it was not the aim of this study to discover which pathologies receive most media coverage. Secondly, it is uncertain whether keyword searches provide complete search results. Inevitably, keyword searches return some results that are irrelevant and, vice versa, might overlook some items that are relevant. For example, when health-related terms are used in a metaphorical sense to talk about the financial progress of a company. Furthermore, relying only on those titles that are available in archives would introduce a bias towards print media, which is exactly what this paper aims to avoid.

Consequently, since digital archives were not used, the researchers leafed through the hard copies of newspapers and magazines, watched live transmissions of television broadcasts (which were recorded to be able to watch them again afterwards), and visited the websites on a daily basis. Only for radio news did the researchers rely 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.

More specifically, the manual selection includes news items about new scientific studies in the field of medicine, health policy issues (e.g. the government's drug reimbursement policy or 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 (a new form of *in vitro* fertilization). Besides pure (hard) health news, the researchers also included soft news that is health-related, ranging from new diets and lifestyle issues to dealing with emotions when diagnosed with a terminal disease. 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 and doping. Additionally, it is important to stress that unlike typical content analyses of print content, 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.

Lastly, the scale and setting of this content analysis constitute a viable basis for comparison with empirical research in other national contexts. Belgium has a diversified media ecosystem with multiple news websites, newspapers, and magazines run by a number of different publishing houses, as well as commercial and public broadcasters. This multiplicity and abundance in media content supply that yields fierce competition between media titles makes Belgium a viable case for comparison with media systems and associated sourcing routines in other Western capitalist democracies.

The items were coded based on a codebook and registration form.² Measurements and analyses were performed on two different levels. First, features of the news item as a whole were coded ($N=981$), e.g. title of the news item, title of the media brand in which the item occurs, author, theme, publication date, and number of sources used. Secondly, coding was also done on the level of the sources ($N=1998$). The 981 news items in the sample contained 1998 news sources. Sources were operationalized to include both material resources ($N=793$) such as websites, reports, government documents, social media, or statistical databases, and human information sources ($N=1205$) such as bystanders, spokespeople for organizations, politicians, etc. The news sources, both material and human, are coded according to 16 predefined categories representing various stakeholders in the field of health and media: (1) press agency, (2) traditional media brand, (3) industry (e.g. pharmaceutical or food industry), (4) policy-makers (e.g. politicians belonging to a political party), (5) sickness funds (i.e. socially funded health insurers), (6) consumer organizations, (7) patient organizations, (8) academics, (9) associations of health professionals and hospitals, (10) associations of non-health-

related professionals (e.g. trade unions), (11) ordinary citizens (patients, friends, and family of patients, vox pops), (12) civil society (e.g. non-profit organizations such as the Red Cross), (13) government institutions (e.g. party-neutral advisory boards or institutions such as the World Health Organization), (14) celebrities, (15) medical personnel (specialist doctors, general practitioners, nurses, etc.), and a residual category (16) “other”.

All analyses (crosstabs, significance tests, etc.) were conducted using SPSS 22. The coder reliability was tested on a random sample of 300 news sources (approximately 15 percent of the total sample) and reached Cohen’s Kappa values between 0.78 and 0.89 which indicates good agreement (Neuendorf 2002).

Table 5-1. Mean number of sources per media type (N= 1998)

	Number of items	Number of sources	Mean number of sources per news item		Significant medium pairs ^a
Newspaper	471	984	2.04	(SD = 1.48)	NT**,NM**, NR*
Television	102	291	2.85	(SD = 2.47)	NT**, MT**, RT**, OT**
Magazine	202	374	1.98	(SD = 2.38)	MT**, MN**
Radio	103	147	1.58	(SD = 0.93)	RN*, RT**
Online	103	202	1.95	(SD = 1.89)	OT**
Total	981	1998	2.05	(SD = 1.84)	n/a

^a significance was tested using a Kruskal-Wallis test for the total sample with Mann-Whitney U post-hoc comparisons for medium pairs. N, newspaper; T, television; M, magazine; R, radio; O, online.
 *p ≤ 0.05;
 **p ≤ 0.01

5.4 Results and discussion

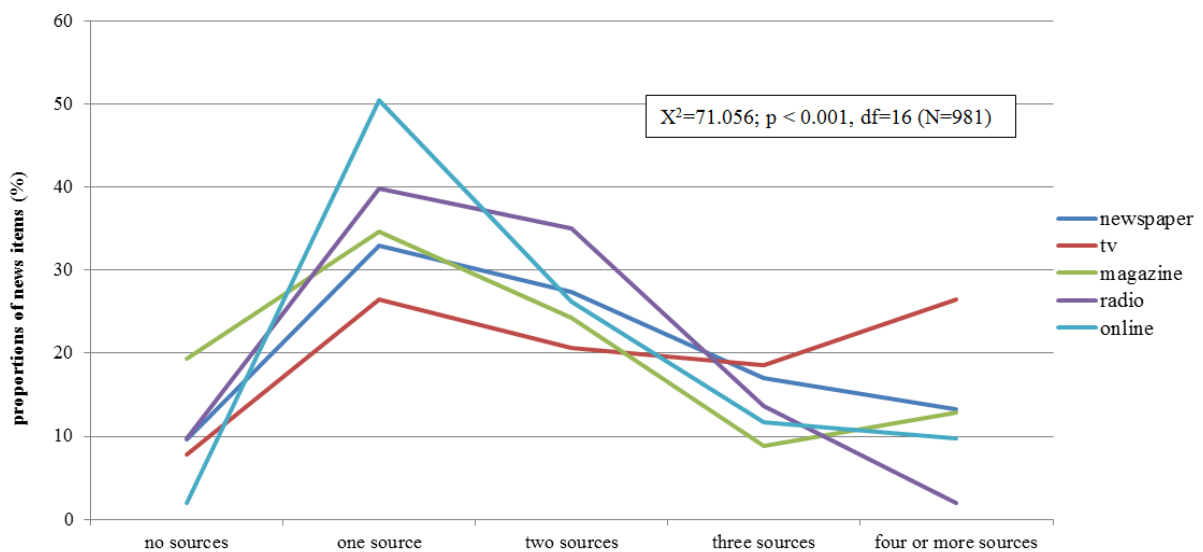
5.4.1 Number of sources

Firstly, Table 5-1 provides an overview of the mean number of sources per news item across the five media. Overall, on average two sources appear in any given health news item. There is, however, considerable variation between different media types. For instance, it shows that television demonstrates richer sourcing than radio, online, and print news. This finding is confirmed in Reich’s (2016) reconstruction interviews with reporters. Given that part of the sourcing practices remains hidden for content analysis because not all consulted sources are deemed relevant to be mentioned in the resulting news item, it is not a surprise that the average number of sources found by Reich (2016) is higher for every medium. Nevertheless, if we look beyond these absolute differences and try to observe trends, our data support Reich’s findings. Television news items, both in this content analysis and in Reich’s reconstruction interviews, differ significantly from the other media types concerning the number of sources used per news item. Additionally, our sample shows that, besides television,

newspapers have the highest average number of sources per news item, followed by online content and, lastly, least rich in sourcing is radio. Likewise, Tiffen et al. (2014) demonstrate that television news contains more sources than print and online news. Finally, it is worth noting that 10.6 percent of all news items do not contain a single source attribution and predominantly stem from women’s magazines.

Secondly, the distribution of sources over news items across different media types differs significantly as well ($p < 0.001$). Broadly speaking, there is a long-tail distribution of sources over news items in all the examined media types. Put differently, most news items contain one or two news sources while only a marginal fraction of news items contains three, four, or more sources. Nevertheless, as illustrated in Figure 5-1, this tendency is strongest online and on the radio, somewhat weaker in newspapers and magazines, and almost levelled out on television. Again television news shows traces of more complex sourcing patterns. In agreement with Reich (2016) and Tiffen et al. (2014), television news items display a low rate of news items where no sources or only a single source is mentioned, but also the highest rate of news items based on four or more sources.

Figure 5-1. Distribution of sources in news items across media types (N= 981)



From this we can conclude two things. Firstly, media types differ in terms of the average number of sources used per news item. Television seems to have the richest sourcing patterns, while radio news on average relies on fewer sources. The higher number of sources on television might be explained by television’s visual nature. Furthermore, television news reporters often go to the physical location of the news event where they can interview by-standers and other actors involved in the news event, thus favouring showing over telling. The complex sourcing might reflect the complex production process on television which requires a lot of cooperation between reporters, editors, presenters, and technical staff (Boyd, Stewart, and Alexander 2008). Secondly, the number of sources used per news item in

health news across various media types resonates with findings in other areas such as politics or general news (De Keyser and Raeymaeckers 2012; Reich 2015, 2016; Tiffen et al. 2014). In other words, when it comes to the number of sources used per news item, health news follows the same tendencies as news in other beats with significant differences between media types, thus favouring particularist approaches to news production. Yet, the question still remains whether health news shows any specificities in relation to the types of news source.

5.4.2 Types of source

Drawing on the literature review, elite sources (e.g. politicians, sickness funds, other media sources, news agency copy) as well as experts (e.g. academic, medical professional, spokesperson of government institution) would outweigh non-elite sources (e.g. ordinary citizens, civil society actors such as not-for-profit organizations, patient/consumer organizations). The share of sources stemming from commercial stakeholders (also considered elite), on the contrary, is predicted to be relatively small since health journalists are weary of industry source material that may contain biased information. As shown in Table 5-2, these predictions are largely borne out. Medical professionals, experts from government institutions, academics, and references to scientific journal articles from various fields of medicine dominate health news (37.2 percent). As demonstrated by Albæk (2011), the use of experts as sources is on the rise. The complex nature of health issues and the difficulties of translating this complex information to a broad lay audience warrants the use of experts as sources in health news. The relatively high percentage of medical personnel as sources further confirms this finding. The majority of medical personnel mentioned in health news items consist of specialist doctors, while only a fraction are general practitioners or paramedics such as nurses or midwives.

Non-elite sources such as patients also frequently occur as sources in health news. In fact, non-elite lay voices and expert voices represent nearly equal shares in the total source pool, possibly because the coverage of intrusive topics was associated with a higher number of ordinary citizens as sources; health, of course, can be considered as an intrusive subject matter. Furthermore, health journalists also indicate that they value the use of testimonies. Complementing the objective language of medicine with the subjective experience of being ill is a frequently adopted strategy for engaging the audience and making abstract information more concrete (Zillmann 2006) while at the same time aiding the spread of effective health information.

Table 5-2. General overview of source origin in % (N=1998)

Source origin	% ^a
Academics	20.5
Ordinary citizens	18.6
Policy-makers	10
Medical personnel	9.9
Traditional media brands	8,4

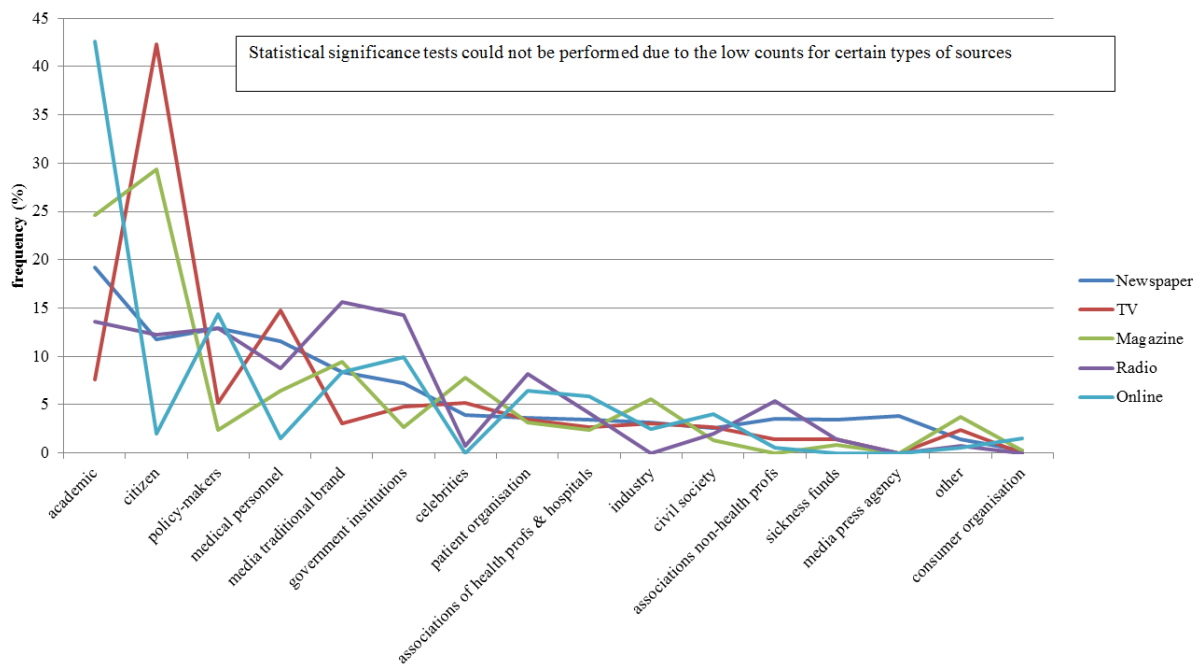
Government institutions	6.8
Celebrities	4.2
Patient organization	4.1
Ass. of health professionals & hospitals	3.4
Industry	3.3
Civil society	2.5
Ass. of non-health related professionals	2.4
Sickness funds	2.1
Press agency	1.9
Other	1.9
Consumer organization	0.4
^a Percentages do not add up to 100 due to rounding errors	

5.4.3 Comparing media types

Large differences in terms of sourcing are observed across various media types. Figure 2 demonstrates that the two largest source categories, i.e. experts and ordinary citizens that together make up almost half of the source pool, are very unevenly distributed. Firstly, the high number of academic sources (42.6 percent) in online health news resonates with the conclusions from other comparative content analyses, i.e. experts feature most prominently online (Tiffen et al. 2014). This is in stark contrast with television news in which academic sources (7.9 percent) occupy only a small share of the total source pool. Secondly, for ordinary citizens as sources the opposite is true. They mainly occur on television (42.3 percent), usually under the form of patient testimonies, experiential accounts of friends and family of the patient, or vox pops, but hardly appear in the online health news content (2 percent). With respect to the division between experts and citizens, television and online content are diametrically opposed.

That health journalists are skeptical towards source material stemming from industry seems to be confirmed as well. Overall, the share of industry sources is relatively small (3.3 percent) (cf. Table 5-2). It comes nowhere near the shares of other elite sources such as academics, medical personnel, or politicians. However, while the share of industry-related sources fluctuates between 2.5 and 3.2 percent in online, radio, television, and newspaper health news, reliance on industry sources in magazines is twice as high (5.6 percent). Consequently, despite the overall low number of commercial sources, magazine news apparently seems more susceptible to industry influences. Combined with the fact that magazines contain a lot of opaque news items (10.6 percent), display infrequent use of academic and medical experts, but frequent use of non-expert citizen and celebrity sources, these findings might indicate that the profit-oriented business logic of media companies is most pronounced in magazines.

Figure 5-2. Source origin per media type (N = 1998)



Finally, the occurrence of media sources may serve as an indication for inter-media agenda-setting processes. That is, increased competition, cost-cutting, and newsroom convergence create an atmosphere in which considerations of efficiency force journalists increasingly to rely on each other's work. It seems that the immediacy of radio news, as predicted by Reich (2016), encourages the use of other media sources. The hourly radio news bulletins seem to draw explicitly on what other news media have reported earlier that day (or the day before).

5.5 Conclusion

This research examined which sources are routinely used for construing health news and whether differences in sourcing patterns could be observed across different types of media. Therefore, we set up a quantitative content analysis to compare sourcing practices in newspapers, magazines, television, radio, and online news. On the one hand, findings are in line with literature on sourcing practices in other news beats; on the other hand, we did find some striking deviations from this traditional strand of literature in terms of the use of citizen sources.

Firstly, turning to the origin of sources, results emphasize the specificity of health news as opposed to other news beats. The dominance of academic experts is a logical consequence of the sometimes complex nature of health topics. Nevertheless, occurrences of ordinary citizens as sources nearly equals the share enjoyed by experts. In other words, the objective language of medicine and the subjective experience of illness coalesce in mass mediated health stories, albeit not to the same extent in every media type. Newspaper and radio news displays a relative balance between expert and citizen voices.

Secondly, citizen voices are nearly completely absent in online news, while on television and to a lesser extent also in magazine health stories, citizen accounts greatly outweigh the expert voice of academics and medical doctors. Contrary to television, online content does exhibit very frequent use of expert academic sources. Consequently, online health news stemming from the two net-native health news websites seem to cater for an audience that is interested in base-rate objective medical information, new scientific discoveries, and innovative research in the field of medicine. In fact, online news supposes a predisposed interest in health news in its audience. Neither website in the sample makes use of citizen accounts to engage their readers. While this certainly warrants further research, a tentative explanation might reside in the fact that search engines are increasingly used to find news or information (Pearson and Kosicki 2016). The health news websites in our sample sometimes seem to blur the line (if there is one at all) between health information and health news. That both websites contain large archives of news items dating back several years further supports this argument. Additional research into the actual role played by expert and citizen sources in the narrative structure of news items seems warranted.

In fact, both Verhoeven (2008) and Albæk (2011), independently and for different news beats, i.e. science and general-interest news, respectively, conclude that the inclusion of certain sources may have more importance for the presentation of the news item than for its contents. Lay narratives, for instance, are not necessarily included to hear what these people have to say, but instead serve as a means to convey the story to a wider audience (Verhoeven 2008). This popularizing trend that hinges on emotional investment runs through not just health news but news in general and is symptomatic of today's highly commodified news culture (e.g. Gans 2009). Similarly, Albæk (2011) notes that expert references often serve as journalistic tools to enhance an article's credibility (cf. Remus 2014). What is at stake, in both cases, is the framing of the issue rather than the substance of what is being said. In other words, ordinary citizens and experts may function purely as framing devices, and not as sources of information.

The need for expertise, furthermore, surpasses purely medical or science beats. Not just the "hard" sciences, but also social scientists are increasingly needed to explain our everyday world (Albæk 2011); for instance, a sociologist explaining why so many people decide to join collective periods of abstinence such as "meatless Friday", "Sober February", or "FebFast" in Australia (*De Morgen*, January 31, 2017). However, there lies potential danger in this practice for two mutually reinforcing reasons. First, expert statements often contain opinions rather than factual elaborations (Albæk 2011). Second, since sourcing practices are to a large extent routinized (Reich 2009), certain scientists may become routine sources for certain issues. As a consequence, the opinion of one individual expert might make it to the news on an almost weekly basis, while another expert on the same matter but with a different opinion might never gain a voice (Albæk 2011).

Thirdly, it seems that the number of sources used for health news, the long-tail distribution of sources over health news items, as well as the observed differences between media types produce

results similar to other research comparing different media types. The general tendency that television news relies on a broader range of news sources than print, radio, and online content is also reflected in our results. What is more, the alignment of patterns found via content analysis, on the one hand, and reconstruction interviews, on the other hand, validates the method of content analysis for drawing tentative conclusions about underlying sourcing practices. Despite the fact that content analysis somewhat underestimates the actual number of sources used because not all sources consulted are mentioned in the news output, it does enable us to observe sourcing trends similar to the ones observed using interview methods (e.g. Reich 2009, 2015, 2016).

In sum, our analysis suggests that different media types vary in terms of which sources they prefer as well as in the number of sources required to build a story. Consequently, the particularist approach to news sourcing is confirmed in this exploratory content analysis. Media do not merely differ in the later stages of the news-making process, i.e. packaging and distribution, but preference for different types of sources indicate that earlier on in the news-making process journalists harness medium-specific evaluations of sources and the type of news they wish to provide. In other words, different media types produce different kinds of health news. The abundance of health information that reaches us through mass media and the fierce competition that characterizes most media ecosystems produce a pronounced diversification between different media types.

There are, however, potential limitations to the method of content analysis for uncovering journalists' sourcing practices. Firstly, content analysis cannot capture those sources that are not deemed important enough to be mentioned in the eventual news item. Nevertheless, despite underestimating the absolute number of sources used per news item, content analysis does seem to capture the same overarching tendencies, namely television has rich sourcing and radio news on average relies on fewer sources. Secondly, as content analysis draws on what is manifestly present in the news output, it cannot uncover latent plays of power. For instance, journalists might contact pharmaceutical companies in order to obtain other sources such as experts, or patients. Of course, one can suspect that if pharmaceutical companies refer journalists to additional sources, the message of these sources will be in line with the pharmaceutical companies' business objectives. Thirdly, the news items that constitute the sample of this analysis were collected during one month (28 consecutive days, February 2015). It could, therefore, be interesting to repeat this study during some other period of the year, or in another national context where archives are available that allow for a sample based on constructed weeks to see whether the same conclusions will be reached.

This exploratory and comparative content analysis focused on health journalists' sourcing practices and differences in such practices across various media. At the very least, we hope that this analysis contributes to the sparse comparative body of knowledge about sourcing preferences in different media types, for news in general, and for health news specifically. Besides a theoretical contribution, we also hope to guide news consumers on how their ideal health news diet should or could be composed.

NOTES

1. These websites are net-native and exclusively focus on health news (www.gezondheid.be, www.gezondheidenwetenschap.be). They are not the online counterparts of the traditional print newspapers. This strategy is chosen to avoid “shovelware”. While newspapers are strengthening their online efforts, traditional print news media outlets’ online platforms, especially the freely available content, contain a lot of material that was originally manufactured for print and which is then subsequently put online without modifications.
2. For more detailed information about the codebook and registration form, contact the first author.

6 HYPERTEXTUALITY IN NET-NATIVE HEALTH NEWS

A quantitative content analysis of hyperlinks and where they lead to

Abstract

By means of a quantitative content analysis of two Belgian net-native health news websites, this article will investigate the reliability and usability of the hyperlinks that are increasingly present in various forms of online news. Hyperlinks in our sample overwhelmingly redirect readers to government websites and websites that contain scientific information such as websites of universities, scientific research groups and peer-reviewed academic journals. Hyperlinks to information generally perceived as less reliable and possibly biased such as user-generated content or pharmaceutical companies are used rarely. This suggests that online health journalists strongly share the preferences of their offline colleagues. However, in terms of the potential of hypertext to tailor health news to the needs of the audience, for instance by including multimedia content or even simply by hyperlinking to webpages in the same language as the original (i.e. in the context of this study that is Dutch), there are clear indications that Belgian online net-native health news falls short. The practical hindrances and hurdles identified in this content analysis constitute an invitation for online health journalists to consider the possibilities of hypertext in the light of how users might appreciate this practice.

Keywords

content analysis, health news, hyperlinks, sourcing, transparency

Reference

Stroobant, J. & Raeymaeckers, K. (in press). Hypertextuality in net-native health news: A quantitative analysis of hyperlinks and where they lead to. *Journal of Applied Journalism & Media Studies*, in press.

<http://www.ingentaconnect.com/content/2001-0818>

6.1 Introduction

In recent decades the Internet has become an important medium for both patients and health professionals to seek health information (Higgins et al. 2011; Hu and Sundar 2010; Lamerichs 2008; PEW 2013). Health information on the Internet is not only widely available, but also stems from a wide variety of sources (Clarke et al. 2003; Grosej 2014), e.g. news websites, patient organizations, government initiatives, community websites, academic and scientific databases, blogs, etc. A recent survey conducted by the *Belgian Centre for Evidence-Based Medicine (CEBAM)* with 2,225 respondents found that 86 per cent seeks health information on the Internet; 80 per cent begin their quest through a *Google* search and 41 per cent of respondents only click on the first three links *Google* provides (VVOG 2015). Media companies, like most commercially-oriented businesses, consider it a priority to get a top rank in *Google's PageRank* algorithm (Bakker 2014; de Souza 2013). A quick *Google* search with the query 'symptoms of cancer¹' teaches us that of the first eight organic search results, six are links to webpages containing news. The remainder are links to a patient organization's website and a forum. Similarly, Grosej (2014) shows that news websites occupy a central position in the overall online health information landscape.

However, health news is often criticized for portraying very complicated issues in too simplistic terms (Hinnant, Len-Riós and Oh 2012), and for excessively sensationalizing stories, thus contributing to the social phenomenon of 'disease mongering' (Moynihan, Heath and Henry 2002). Without wanting to overly dramatize the impact of health news on actual health behaviours, previous research has abundantly demonstrated that media – be it online or offline – do have the capacity to influence public perceptions of health (e.g. McCaw, McGlade and McElnay 2014; Medlock et al. 2015; Nielsen and Nordestgaard 2015). Consequently, health news websites as well the websites that are linked to may influence our ideas of what is healthy (and what is not), and thus ultimately also real-world health behaviours.

More specifically, by focussing on hypertextuality this article investigates whether health news websites serve as useful starting points for health information. Given the potential of hypertextuality and the prominence of news websites in the online health information landscape (Grosej 2014), this article will quantitatively analyse the hyperlinking behaviour of two prominent Belgian, Dutch-language, health news websites, i.e. one commercial website www.gezondheid.be (henceforth abbreviated as GEZ) and one public service website www.gezondheidenwetenschap.be (henceforth G&W). While many empirical studies of online news have concentrated on the affordances of online news (e.g. Chung 2008; Larsson 2013; Oblak 2005), they have not done so in function of a specific beat – being health. Furthermore, while many investigations of hypertextuality in journalism focus on the mere presence or absence of links in news content or on the hyperlink's destination as either external or internal (e.g. Dimitrova et al. 2003; Karlsson, Clerwall and Örnebring 2015; Larsson 2013; Oblak 2005; Quandt 2008), this article also focusses on the origin and presentation of the content on

the hyperlink's target webpage. Consequently, the main research questions that drive this explorative investigation of hypertextuality in online health news revolve around the reliability and usability of the information that health news websites link to. The originality of this study thus resides in viewing the news article as well as the additional hyperlinked information as one whole.

6.2 Literature Review

This article proposes that hypertextuality in health news merits special attention because of the exceptional status that health news has in our society (de Botton 2014; Clarke et al. 2003). Health news differs from general news in that it is an 'experience good' (Len-Ríos et al. 2009: 325). Especially online where people purposefully seek (and find) specific types of information rather than passively waiting until 'something interesting' comes on. Assessments of its quality should be made in terms of how readers can use this information for making decisions concerning their own personal health status (Len-Ríos et al. 2009b). Consequently, online health journalists may or may not employ the specificity of online news to the advantage of the audience's understanding of health-related issues by providing links to websites with relevant and reliable background information.

As a cornerstone of the Internet infrastructure, hypertext can be defined as a series of texts that are non-linearly connected through the use of hyperlinks (Steensen 2011). The notion of 'text' can be interpreted very broadly because computer-based storytelling is not limited to written text but rather potentially includes images, videos, infographics and sound clips as parts of chained hypertextual storylines (cf. Bounegru et al. 2017). For example, hyperlinks could redirect visitors to a video fragment in which the biological progress of a disease is explained or to a sound clip of a university professor's lecture. However, despite the potential for multimodality in health communication (e.g. Smit, Linn and van Weert 2015), previous empirical studies have demonstrated that online news items contain links to video files less than five per cent of the time (Dimitrova et al. 2003; Quandt 2008; De Maeyer 2013). While the presence of visualizations and other multimedia content may benefit the understanding of health news (Ritterband et al. 2009; Smit, Linn, and van Weert 2015; Walthouwer et al. 2013) – which might in turn lead to an overall improvement of the audience members' personal health status – this potential is hardly realized. Therefore, especially in a health news context, this issue seems to merit more scholarly attention.

6.2.1 Four functions of hyperlinks in journalism

First and foremost, hyperlinks constitute a prominent sourcing mechanism (De Maeyer and Holton 2016; Dimitrova et al. 2003; Karlsson 2011; Napoli 2008; Steensen 2011). While we must be careful when equating hyperlinks with sources, i.e. not all sources are digitally available and not all links refer to sources (De Maeyer 2015), hyperlinks do have the potential to make the sourcing process more transparent and interactive. By inserting hyperlinks, journalists not only provide the reader with a

sneak peek behind the curtain of their otherwise covert professional sourcing routines, they also render the news more interactive since readers are invited to click on links thus travelling through cyberspace. In other words, by inserting hyperlinks journalists can exert control over the information flow to which readers are exposed, but also over the ‘audience flow’ because hyperlinks direct traffic (Napoli 2008: 63).

However, while there are ‘progressive linking enthusiasts’ among journalists who believe that hyperlinking generates better journalism, there are also ‘reserved pragmatists’ who approach the practice of linking with more caution (Vobič 2014). The latter prefer either internal links so that audiences are kept within the boundaries of the website, or no linking at all out of fear to be exposed (Vobič 2014: 363). Being more transparent by providing direct access to the raw source materials may not be an attractive choice for online journalists whose job it is to aggregate content and to subsequently optimise that content for SEO and social networking sites as this would expose copy-paste journalism (Bakker 2014; Vobič 2014). The enthusiasts, on the other hand, do believe in the added value of hyperlinking. Yet, as Coddington (2014) convincingly argues, journalistic hyperlinking practices are nevertheless still constrained by a shared set of professional ideals such as neutrality and objectivity. As a result of the institutionalization of hyperlinking within existing professional journalistic routines, only a limited range of other (mostly institutional) sources such as government websites are linked to by news websites (Coddington 2014: 150; Larsson 2013; Stroobant, De Dobbelaer and Raeymaeckers 2018; Stroobant 2018a; Tremayne 2005); as opposed to hyperlinking in the blogosphere, for example, which is more diverse (Paulussen and D’heer 2013; Sjøvaag, Moe and Stavelin 2012; Straub-Cook 2017; Walejko and Ksiasek 2010).

Secondly, hypertext has the potential of adding extra layers of content (De Maeyer 2015; Tsui 2008). On the one hand, hyperlinking can provide a solution to the often heard criticism that health journalists tend to oversimplify medical news which might lead to blunt and undifferentiated coverage of health issues (Hinnant, Len-Riós and Oh 2012; Levi 2001; Ransohoff and Ransohoff 2001). On the other hand, lay audiences might shy away from too complex news, for example, about scientific research relating to medical advances. Therefore, simplification – to a certain extent – seems warranted and even desirable (Gans 2009; Hinnant, Len-Riós and Young 2013). Theoretically speaking, hyperlinks provide a means for online health journalists to accommodate a broader audience by including links to the scientific or medical journal in which the original research was presented. This can be seen as a win-win situation for both readers and journalists because, on the one hand, readers can browse according to their own needs; journalists, on the other hand, can ‘[cover what they do best and link to the rest](#)’ as journalist, media scholar and open Web advocate, Jeff Jarvis (2007), famously wrote in his blog on online journalism.

Thirdly, hyperlinking can increase diversity in news by stimulating open and democratic discussions (De Maeyer 2015; Steensen 2011). Not just privileged elite voices such as politicians and the influential mainstream media are picked up, but also alternative voices from grass-roots activists,

alternative media or ordinary citizens can be hypertextually included (Gans 2011). However, while opposing opinions may generate inspiring discussions, in the context of health news this might lead to contradictory statements about what is healthy and what is not. Ultimately, balanced reporting regarding issues over which the medical science community has reached a consensus may incite feelings of doubt (Dixon and Clarke 2013; Holton et al. 2012). For instance, ‘falsely balanced reporting’ of the autism-vaccine controversy leads to heightened uncertainty about the safety of vaccines (Dixon and Clarke 2013: 352; Gallagher 2015).

Fourthly, in specific circumstances the presence of hyperlinks in news articles boosts the article’s overall credibility and even willingness of the audience to seek further information (Borah 2014; Chung, Nam and Stefanone 2012; De Maeyer 2017; Gallup/Knight Foundation 2018; Karlsson and Clerwall 2018). Inserting hyperlinks to source documents enhances readers’ perceived credibility of the news article’s contents (Chung, Nam and Stefanone 2012; Johnson and Wiedenbeck 2009). For online health news specifically, Tremayne (2005) argues that hyperlinks leading to external authoritative websites such as government institutes or academic research centres, are more frequent in health news than in other news beats. The delicate nature of health news and medical advice in general, Tremayne (2005) says, creates a predisposition in health news for hyperlinks towards external authoritative sources to support claims made by journalists. Linking to this type of authoritative institutions therefore adds to the credibility of the mere presence of a link, but not to the diversity of news.

6.2.2 The economic reality of hyperlinks

A common thread running through many empirical studies about hypertext is the focus on external versus internal hyperlinks. The distinction between, on the one hand, internal links which redirect readers to another webpage within the same domain (or website), and on the other hand, external links which redirect readers to a different website, is important in the assessment of online health journalists’ use of hyperlinks because hyperlinks also expose commercial interests (Chang et al. 2011; De Maeyer 2017). If free news websites’ business models hinge on advertising revenue, then it is not just essential to attract traffic, but also to keep that traffic within the contours of the website. One effective way of accomplishing this is by using internal links and simultaneously shying away from external links thus creating a sort of ‘walled garden’ (Napoli 2008: 63). Although this protectionist linking strategy contradicts the journalistic potential of hyperlinks described above, it is fully in line with the economic dimensions of commercial news websites’ business models. Furthermore, previous empirical studies seem to confirm that commercial interests often take precedence over the journalistic potential of adding hyperlinks (Coddington 2012; De Maeyer 2013; Dimitrova et al. 2003; Himelboim 2010; Karlsson, Clerwall and Örnebring 2015; Larsson 2013; Oblak 2005; Quandt 2008; Tremayne 2005). Percentages of internal hyperlinks in these studies range from 70 to 90 per cent. Even public broadcasters’ websites which are not subject to commercial pressures to the same extent as privately

owned media organizations make limited use of external hyperlinks (Sjøvaag, Moe and Stavelin 2012). There are nevertheless differences among various types of news websites. For instance, net-native news websites demonstrate more progressive hyperlinking behaviour than the websites of traditional, legacy, media brands (Cui and Liu 2017; Stroobant 2018a). Yet, despite a possible loss of traffic in the short term, Weber (2012) who studied newspapers' hyperlinking practices between 1996 and 2006 from a community-ecological perspective, found that establishing external hyperlink ties with competitor websites is beneficial for traffic in the long run.

On a final note it is worth mentioning that the number of external hyperlinks may still be overestimated because not all external links should be considered as such (De Maeyer 2013). Technically external hyperlinks to other webpages but which belong to affiliated organizations should be considered 'fake external links' after '*faux liens externes*' (De Maeyer 2013: 167). Formally, these links are external because they link out to a different domain, yet because both domains belong to the same organization, they should be considered as internal or 'fake external'. In what follows, these hyperlinks will be denoted as pseudo-external.

6.3 Method

The sample for this content analysis consists of all hyperlinks found within the margins of 479 news articles on gezondheid.be (GEZ) and gezondheidenwetenschap.be (G&W). A total of 769 hyperlinks (GEZ: 550; G&W: 219) was manually collected during a period of four non-consecutive, randomly selected months over a span of two years (for an overview see Table 6-1 below). For G&W, four additional months were included to compensate for the lower publication rate. Both websites were visited daily and all hyperlinks comprised within the journalistic text of the news articles were collected manually by copy-pasting the hyperlink from the websites' underlying HTML source code². This procedure was implemented to assure the inclusion of hyperlinks with a clear journalistic function rather than automatically-generated hyperlinks in sidebars or below the article referring to 'read also'-or 'related'-articles (Bakker 2014; Larsson 2013).

Choosing websites to include in the sample is not a trivial matter. Both G&W and GEZ, are net-native websites, i.e. they do not have a parent print counterpart. This is important for two reasons. First, it is in line with Deuze's definition of online journalism as 'produced more or less exclusively for the web' (Deuze 2003: 203). Secondly, this way we want to ensure that our sample does not contain 'shovelware' (Stovall 2005). While many empirical studies focus on websites of legacy media (e.g. Dimitrova et al. 2003; Sjøvaag, Moe and Stavelin 2012; De Maeyer 2013), we will focus on online-only health news to get more insight into how online journalists have incorporated features of hypertextuality in their daily routines and how this differs (or not) from results in studies where websites of print media were investigated.

Table 6-1. Sample overview per website

	GEZ		G&W	
	articles	hyperlinks	articles	hyperlinks
February 2015	84	154	20	27
April 2015	-	-	21	27
May 2015	-	-	18	22
July 2015	78	103	18	29
March 2016	81	143	24	31
April 2016	-	-	19	31
August 2016	79	150	15	22
September 2016	-	-	22	30
Total	322	550	157	219

Both G&W and GEZ provide health-related articles on a daily basis, but G&W produces only one article per weekday while GEZ produces several a day (weekend included). This difference is due to the staffing of both websites. GEZ which is privately owned and sponsored through advertisements employs at least one full time journalist and this is his main occupation. G&W on the other hand, which is founded by the *Belgian Centre for Evidence-Based Medicine (CEBAM)* and funded by the Flemish government, does not employ full time journalists. Instead, this website is kept alive by voluntary contributions by general practitioners. The main coordinator of the website, however, is a professional journalist (M. Finoulst) who is also the editor-in-chief of a print health magazine (i.e. *Body Talk, Knack - Roularta*). Despite the drawback that both websites do not produce the same amount of output, this does allow for an interesting comparison of how differences in websites' business models and organization may influence hyperlinking.

With our variables which are mainly categorical we go beyond what traditional content analyses of hyperlinks have examined. We do not only examine the features of the hyperlink itself (internal/external, country codes, URL and link text), but we also visit the URLs contained in the hyperlinks because we want a comprehensive evaluation of how hyperlinks shape and possibly enrich of the original news item. If hypertextuality is a means to embed news articles within other content thus enriching the journalistic value of the original news item, then research should also scrutinize the content adduced by hyperlinks rather than exclusively focussing on the hyperlink in its original context of enunciation. Drawing on previous research in health news sourcing in various media types (e.g. Stroobant, De Dobbelaer and Raeymaeckers 2018 (and references therein); Verhoeven 2008; Wallington et al. 2010) and, albeit to a lesser extent, in the applied field of health communication (e.g. Ritterband et al. 2009; Smit et al. 2015; Walthouwer et al. 2013), we developed a number of variables measuring three different aspects.

Firstly, in order to assess the reliability of linked to news websites, each hyperlink was assigned to one of fourteen carefully selected categories, i.e. (1) policy-makers, (2) government institutions, (3) traditional media brands, (4) industry, (5) sickness funds, (6) consumer organizations, (7) patient support and advocacy groups, (8) academic, (9) associations of health professionals and hospitals, (10) personal or community websites, e.g. blogs, *Wikipedia*, (11) civil society and non-profit health information providers, e.g. *Rode Kruis*, *De Maakbare Mens* vzw, (12) press agency, (13) media doctor websites³, i.e. meta-journalistic websites that comment on mainstream health reporting thus fulfilling a media watchdog role (Deuze 2003: 210) and (14) a residual category 'other'. Two mailto-links were encountered, but are not included in the analysis. In order to identify to which of the above mentioned categories a hyperlink belonged, the link was clicked and its target website was visited.

Secondly, besides the origin of the information that health news websites link out to, another set of variables was designed to gauge whether the target pages contained images, graphs, videos, audio-files or advertisements. Additionally, also the language of the landing page was taken into account. These variables concerning a website's lay-out and overall understandability are implemented to assess the usability of that information since health news is an 'experience good' (Len-Ríos et al. 2009: 325). Therefore, not only the origin of the information will be assessed so that possible biases can be detected, but also the general presentation and lay-out of that information in order to assess its usability.

This procedure also motivates our choice for manual analysis and data-collection techniques. While this is certainly a labour-intensive method, it does allow for a more detailed analysis. It is of course not impossible to design a crawler or bot that could replicate the manual coding efforts performed here, yet devising such code would be equally labour-intensive. Furthermore, there would be no guarantees that the code will work beyond the scope of this specific investigation of Dutch-language health news.

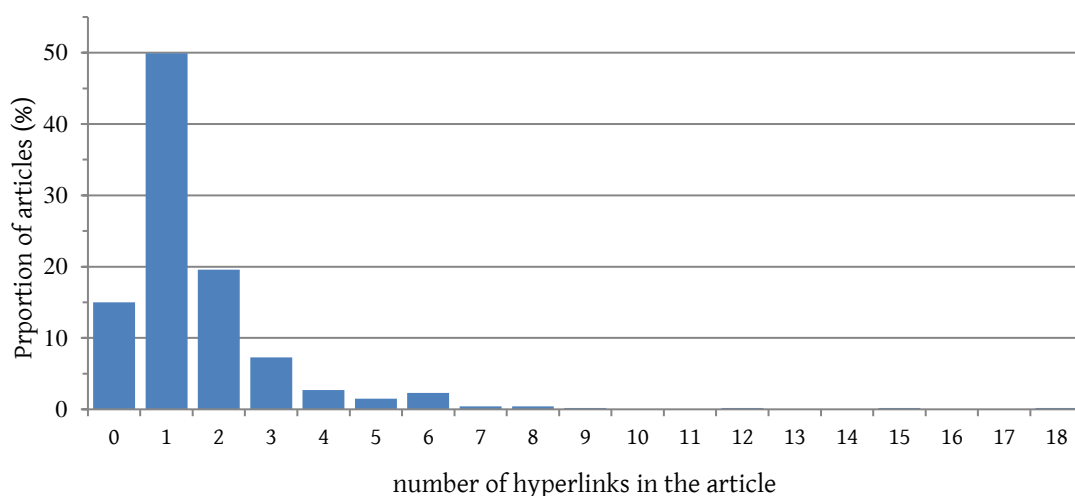
Thirdly, also the number of hyperlinks per news item as well as the destination (i.e. internal/external) were taken into account in order to establish a basis for comparison with previous research on hyperlinking which typically includes only these variables.

Analyses are conducted on two levels. First, the smallest unit of analysis in this study is the hyperlink and the attributes of its target webpage. Secondly, analyses were conducted on the level of the article since one article may contain several hyperlinks. All analyses, crosstabs, Chi-squared tests and graphs were executed with *IBM SPSS Statistics 22*. Finally, in order to test the reliability of the coding, intra-coder reliability was measured by means of Cohen's kappa calculations. Kappa values for all the variables in this analysis range from 0.72 to 1 which indicates good agreement (Neuendorf 2002).

6.4 Results

6.4.1 Number of hyperlinks per article

Figure 6-1. Long-tail distribution of hyperlinks over articles



As illustrated in Figure 6-1, 15 per cent of the articles do not contain hyperlinks. Both websites differ marginally in this respect, i.e. 16.8 per cent of articles on GEZ and 11.5 per cent on G&W do not contain hyperlinks. On average, an online health news article contains 1.61 hyperlinks (SD = 1.76). Again, only a marginal difference between the two websites can be observed, i.e. GEZ: M = 1.71, SD = 2.02 ($n = 322$) vs. G&W: M = 1.39, SD = 0.992 ($n = 157$). While articles on GEZ show greater variance than G&W regarding the number of hyperlinks per news item, this difference is not statistically significant ($U = 25039$, $p = 0.857$). These findings tentatively suggest that the website's funding and editorial organization does not influence the overall presence of hypertext in net-native health news.

6.4.2 Internal, external and pseudo-external

Previous empirical studies have repeatedly shown that internal hyperlinks greatly outnumber external hyperlinks (Coddington 2012; De Maeyer, 2013; Dimitrova, et al. 2003; Himelboim 2010; Karlsson, Christer and Örnebring, 2015; Larsson, 2013; Oblak 2005; Quandt 2008; Tremayne 2005). In our sample, however, the opposite is true. Only about one quarter are internal hyperlinks (24.6 per cent), either referring to a webpage within the same domain (7.4 per cent) or to a webpage on a website owned by the same media organization (17.2 per cent) (see Table 6-2). A Chi-square test of independence indicated a statistically significant difference between the two websites ($X^2(2, N = 769) = 200.854$, $p < .01$). G&W has a stronger preference for internal and pseudo-external hyperlinks than GEZ. This seems surprising since commercially owned websites such as GEZ, funded through advertising, usually contain more internal hyperlinks than publicly funded websites such as G&W. Ownership and funding of G&W offers the best explanation for the unexpected predominance of internal links in its editorial content. As we have mentioned G&W heavily relies on voluntary

contributions; therefore, inspiration for news items is often sought within the UK-based partner website ‘*Behind the Headlines*’ or ‘*Dokter Media*’ in the Netherlands.

Table 6-2. Internal, pseudo-external, and external expressed in % (N=769)

Destination type	GEZ (n = 550)	G&W (n = 219)	Total
Internal	6.7	9.1	7.4
Pseudo-external	5.3	47	17.2
External	88	43.8	75.4

A first possible explanation for the overall predominance of external hyperlinks (75.4 per cent) might lie in the specificity of the topic. Given the delicate and often technical nature of health news, web editors might consider it a safer option to direct interested visitors to external authoritative websites thus avoiding the responsibility of having to provide accurate health information themselves (Tremayne 2005; Len-Ríos et al. 2009). Disclaimers of both websites, furthermore, very explicitly state that they cannot be held accountable for the accuracy of linked to information^{4, 5}. Yet, the frequency with which both websites use external hyperlinks underlines that online journalists feel the need and see the potential of hyperlinking to enhance online news, despite the formal denunciation of responsibility for third party content.

Secondly, the frequent occurrence of external hyperlinks might result from the sample composition. Often, automatically generated hyperlinks in sidebars or below articles exclusively contain internal hyperlinks to related news stories on the same website (De Maeyer 2013; Larsson 2013). The exclusion of automatically generated links from this analysis might explain the prevalence of external hyperlinks.

Thirdly, this difference might lie in choosing net-native websites rather than news websites of the established legacy media. The reasons why hyperlinking behaviour among different types of professional news websites differs may to a certain extent be idiosyncratic, yet recent research seems to systematically identify a general pattern in which net-native news websites demonstrate more progressive hyperlinking behaviour than legacy media websites. This pattern is generally attributed to the socialization of journalists within professional journalism (Coddington 2014; Cui and Liu 2017; Stroobant 2018a).

Table 6-3. Type of source/originator of content on target webpage in % (n=580)

Website category ^a	GEZ (n= 484)	G&W (n= 96)	Total (n=580)
Academics	33.9	15.6	30.9
Government institutions	19.8	36.5	22.6
Patient organizations	18.4	17.7	18.3
Ass. of health professionals & hospitals	9.9	2.1	8.6

Consumer organizations	3.9	2.1	3.6
Civil society	3.3	4.2	3.4
Traditional media brand	1.7	10.4	3.1
Industry	2.5	4.2	2.8
Personal/community website	2.5	1	2.2
Other	2.1	3.1	2.2
Media doctor websites	1	-	0.9
Sickness funds	1	-	0.9
Press agency	-	3.1	0.5
Politicians	-	-	-
^a Pearson's chi-squared test could not be performed due to the low expected counts for some of the categories			

6.4.3 Which type of website is linked to the most?

In this section, the sample will be exclusively limited to external hyperlinks in order to avoid overestimating hyperlinks to categories to which GEZ and G&W themselves pertain, viz. traditional media and media doctor websites, resp. For instance, if all internal and pseudo-external hyperlinks are included, 'media doctor websites' would be the third most frequently linked to type of website. However, if pseudo-external hyperlinks from G&W to other affiliated media doctor websites are left out, this number sharply drops from 16.5 per cent to 0.9 per cent, showing that 'media doctor websites' are not linked to frequently by news websites that do not identify as such.

Table 6-3 (above) shows that external hyperlinks on both websites overwhelmingly redirect readers to academic (30.9 per cent) and government websites (22.6 per cent). Examples of the former are scientific databases with collections of peer-reviewed scientific journals or university websites; the latter are webpages that belong to party-neutral, partly government funded, not-for-profit, scientific institutions with advisory tasks (e.g. *Kind & Gezin* (BE), *Center for Disease Control and Prevention* (USA), *National Health Service* (UK), etc.). 'Party-neutral', in this context, signifies that these institutions are not inspired by party politics, as opposed to webpages of political parties or webpages belonging to individual politicians. In fact, not a single hyperlink on either website led to politically inspired websites.

However, despite the overall predominance of such websites, only 15.6 per cent of hyperlinks on G&W refer to academic research. At first sight, this difference might be surprising since G&W is moderated and supervised by the *Belgian Centre for Evidence-Based Medicine (CEBAM)*, paragon of the scientific method *par excellence*. Consequently, one might expect that articles on G&W would contain many hyperlinks referring to original scientific studies. On closer inspection, nevertheless, not including hyperlinks to the original scientific source might actually be a deliberate choice. Scientific empirical research can be notoriously difficult for a lay audience to understand (Rothman et al. 2008); therefore hyperlinks to scientific research might not be included to protect audiences from drawing the

wrong conclusions. Notwithstanding this observation, G&W does provide references for the scientific studies that it discusses so that interested readers can retrieve the study from a database of choice. Besides possible problems of comprehension, peer-reviewed journal articles usually sit behind expensive paywalls. For non-subscribers only abstracts are available.

Another popular category, besides academia and government institutions, are patient organizations (18.3 per cent). However, contrary to the neutrality of academia and government institutions, patient organizations should be considered as ‘advocates’ rather than as neutral ‘experts’ (Deacon and Golding 1994: 15-17). Patient organizations organize support for one specific cause often with the financial aid of pharmaceutical companies (Read and Cain 2013; Rothman et al. 2011).

6.4.4 What do linked to websites look like? Multimedia: text, images, infographics, audio and video

Table 6-4. Multimedia, language and advertisements on landing pages in % (N=769)

website	text ^b	video ^a	image ^a	graphs ^b	audio ^c	ads ^a	Dutch ^a
GEZ (n=550)	94.7	8.2	50	10	2.7	20	68.5
G&W (n=219)	95	21.9	64.4	5	0.5	5.5	37
Total (N=769)	94.8	12.1	54.1	8.6	2.1	15.9	59.6

^a Pearson Chi-squared test indicates a statistically significant difference between GEZ and G&W at the 0.01 level

^b Pearson Chi-squared test indicates no statistically significant differences between GEZ and G&W

^c Pearson’s Chi-squared test could not be performed due to the low expected counts for some of the cells

As a final factor in the assessment of online health news websites’ use of hypertext, this study has also measured the presence of multimedia content on linked to webpages, as well as the language of those webpages. As illustrated in Table 6-4, media doctor website G&W redirects visitors to webpages with more video content, more images and less ads than GEZ. Apart from the aesthetically pleasing qualities of webpages that do not present visitors with a wall of text, attractive lay-outs and absence of advertisements also build credibility of the website (Eysenbach and Kohler 2002). However, G&W does not seem to meet the most essential criterion for usability, namely language. Only 37 per cent of linked to webpages for G&W are in Dutch. English proficiency levels in Dutch-speaking Belgium are overall high, yet people of lower SES such as ethnic minorities, older adults, and low income families have lower English proficiency skills (EF 2016). For those people 63 per cent of the hypertext paths laid out by G&W are inaccessible due to language barriers.

6.5 Discussion

This quantitative content analysis of hypertext on two prominent Belgian net-native health news websites examined whether the hyperlinks add value to the original news item. This study found that some features, such as the mere presence of hyperlinks in news items resonates with findings in previous empirical studies. The analysis also demonstrates that the focus on a particular beat, uncovers hyperlinking trends that remind of traditional print and broadcast health journalism, but that net-native health news nevertheless differs from other types of online news.

Firstly, the overall distribution of hyperlinks in online net-native health news follows a strong long-tail distribution trend. As shown in figure 1, the majority of news items contains zero, one or two hyperlinks, while only a small minority contains three or more hyperlinks. This principle, in which a limited number of articles contains the majority of links, is also referred to as the 80/20 rule or the Pareto principle (De Maeyer 2013). News items without hyperlinks amount to 15 per cent of the total sample. Yet, findings in previous empirical research generally exceed this number (e.g. Tankard and Ban (1998, cited in Larsson 2013: 741) find 94 per cent without hyperlinks; Dimitrova et al. (2003), 27.5 per cent; Sjøvaag, Moe and Stavelin (2012), 52 per cent, Larsson (2013), 30.5 per cent; Coddington (2012), 36 per cent; De Maeyer (2013), 37.5 per cent). Tremayne's (2005) findings are similar to ours, his study shows that approximately 17 per cent of news items do not contain hyperlinks. As the studies progress in time, fewer articles without hyperlinks appear. This suggests that hyperlinking is becoming a more essential building block of online news. Online health news does not appear to be an exception.

Secondly, our results underline that, while the overall presence of hyperlinks follows dominant patterns, external hyperlinks (i.e. 75.4 per cent) are more strongly present in this analysis than in previous research (Coddington 2012; De Maeyer 2013; Dimitrova et al. 2003; Himelboim 2010; Karlsson, Clerwall and Örnebring 2015; Larsson 2013; Oblak 2005; Quandt 2008; Tremayne 2005). For instance, De Maeyer (2013) analysed seven different online news websites and found that 79.6 per cent of news items do not contain external hyperlinks while in our sample this number is reduced to 37.4 per cent. In the result section three possible explanations regarding (1) the choice of websites, (2) the choice of hyperlinks to include in the analysis and (3) the topic (i.e. health), were suggested to explain the results of the current study.

Thirdly, hyperlinking practices on both websites resemble offline sourcing practices that are inclined towards highly authoritative and elitist sources, e.g. scientific (30.9 per cent) and government sources (22.6 per cent). The reliance on these expert sources could be a consequence of the very delicate and complex nature of health news itself (Tremayne 2005). Furthermore, Tiffen et al. (2014) have observed that online news, in general contains more expert sources than television or print news. Combined with the absence of hyperlinks to websites of politicians, online health news would embody

the epitome of neutral reporting if it were not for the strong presence of hyperlinks to patient organizations.

In theory, patient organisations gather information for patients; bring patients together (in forums or by organizing events); assist patients to find (better) treatments; and they may even participate in the healthcare system (Rothman et al. 2011). Although these organisations have access to expert information, they fight for a particular cause. Therefore, patient organisations, contrary to scientists or government institutions, are not neutral experts but advocates (Deacon and Golding 1994). The possible pitfall that should be identified here is that patient organizations are not always perceived as advocates. Financial ties with pharmaceutical companies are the rule rather than the exception, but this is not always transparently disclosed (Read and Cain 2013; Rothman et al. 2011). Direct hyperlinks to industry websites, on the contrary, are scarce (2.8 per cent), as are hyperlinks to webpages containing advertisements (15.9 per cent).

Finally, the assumption that the affordances of hypertext could offer opportunities for improved understanding of health news through the inclusion of multimedia content (Ritterband et al. 2009; Smit, Linn and Van Weert 2015; Walthouwer et al. 2013), remains but a hypothetical discussion since the overall occurrence of multimedia content in online health news remains rather low (cf. Oblak 2005; Larsson 2013; De Maeyer 2013). Furthermore, the fact that hyperlinks point to specialized academic websites mostly in English and to government websites suggest that, rather than accommodating for a broad audience, hypertextual pathways in health news are somewhat elitist in nature.

A limitation for the generalizability of our results is the limited scope of this study. Further research should expand the sample quantitatively (e.g. more websites), geographically (e.g. cross-national comparisons) and thematically (e.g. comparison between different beats, such as sports, domestic/foreign news, lifestyle, etc.) to further explore some of the issues raised above, i.e. language-barriers, hyperlinks to highly specialized/inaccessible content, relative absence of multimedia.

As a final observation, this article stresses the importance of also examining the information that is linked to when investigating hypertextuality in journalism. While this is labour-intensive, the results it yields are indispensable for understanding hypertext. By coding the hyperlinks in terms of the information of their target webpage, this article was able to move beyond the internal/external distinction and to examine the nature of the content that is linked to.

NOTES

1. Query conducted in Dutch on www.google.be on 9/12/2015, browser used: *Google Chrome* – original query ‘*symptomen van kanker*’. (organic search results are non-sponsored links of the query – which are pushed down by *Google* in favour of *Google Adwords* sponsored links)

2. HTML stands for HyperText Markup Language and is the standard programming language for Web pages. HTML source code can be viewed in all browsers by pressing ‘ctrl’ + ‘U’.
3. Other examples of such websites are *www.healthnewsreview.org* (USA), *www.medien-doktor.de* (GER), *www.medizin-transparent.at* (AT), *doktermedia.nl* (NL), *www.gezondheidenwetenschap* (BE), *www.nhs.uk/news* (UK).
4. ‘A number of link referrals on this website lead to information sources that are ran by third parties over which *CEBAM* does not exert control. Although these links are chosen with great diligence, *CEBAM* cannot be held accountable for the accuracy or any other aspect of the information from these third party sources.’ [translation ours] (available at: <https://www.gezondheidenwetenschap.be/disclaimer>)
5. ‘All information provided by the editorial board of *Gezondheid NV* was composed and verified with the greatest diligence. *Gezondheid NV* cannot under any circumstances be held responsible and/or accountable for possible errors, in any way possible, that occur in this so-called “content”. Whoever consults and/or uses this content, does so under his/her own responsibility.’ [translation ours] (available at: http://www.gezondheid.be/index.cfm?fuseaction=art&art_id=1440)

7 FINDING THE NEWS AND MAPPING THE LINKS

A case study of hypertextuality in Dutch-language health news websites

Abstract

This study considers hyperlinks as digital navigational cues that can guide users through the increasingly complex and vast online health information landscape in order to examine how hypertextuality at both search engines and health news websites mediates access to further health-related information. This is important because online news media are frequently used and convenient sources for health information. The methodology unfolds in two steps. First, an environmental scan of search engine result pages for the term ‘health news’ was conducted. Second, an automated quantitative content analysis (N= 5428) of external hyperlinks found on three types of health news websites, i.e., net-native, mixed and legacy news brands, was performed. Most importantly, this study challenges the dominant internal-external distinction by introducing a systematic distinction between genuine external hyperlinks and pseudo-external hyperlinks when comparing various types of online health news. Net-native news websites provide more hyperlinks to thematically related information than legacy news websites with print origins. The latter often include pseudo-external hyperlinks to thematically unrelated, but organizationally affiliated websites, thus favoring financial relationships over thematic coherence as an incentive to link.

Keywords

Digital journalism; health information seeking behavior; hypertext; search engine; transparency

Reference

Stroobant, J. (2018): Finding the news and mapping the links: a case study of hypertextuality in Dutch-language health news websites. *Information, Communication & Society*, DOI: [10.1080/1369118X.2018.1477971](https://doi.org/10.1080/1369118X.2018.1477971)

7.1 Introduction

The Internet is a frequently used and convenient source for health information (McDaid & Park, 2010). People seek online health information, for example, to find reassurance, to self-diagnose, or to seek general lifestyle advice (McDaid & Park, 2010; Powell, Inglis, Ronnie, & Large, 2011). Nevertheless, it has become increasingly difficult - both for health professionals and lay people - to locate reliable online health sources (Higgins, Sixsmith, Barry, & Domegan, 2011; Lee, Hoti, Hughes, & Emmerton, 2014; Macias, Lee, & Cunningham, 2017).

Contrary to the pre-Internet era when the production and distribution of medical knowledge was restricted to medical elites, the Internet provides an open platform for a wide heterogeneity of sources to independently produce and distribute health information (Clarke, Shim, Mamo, Fosket, & Fishman, 2010, p. 72). The line between lay and expert knowledge, and commercial and non-commercial information is blurring as diverse organizations with varying agendas such as patient organizations, universities, federal health institutes, news media, pharmaceutical companies, physicians' personal webpages, individual patients through social networking or blogging platforms, contribute to the proliferation of online health information (Clarke et al., 2010; Hu & Sundar, 2010).

Given the exponential growth of online information, locating, editing, enriching and organizing relevant high-quality information on a specific topic into a coherent whole has become an important addition to online journalists' skillset (Bakker, 2014; Cui & Liu, 2017). Hypertextuality constitutes the most obvious means for this type of digital content curation - sometimes also pejoratively referred to as aggregation (Bardoel & Deuze, 2001; Cui & Liu, 2017). By inserting hyperlinks to source, structure and contextualize health information, news consumers can click on links and navigate through the complex online health information landscape, thus engaging in a process metaphorically referred to as 'way-finding' (Pearson & Kosicki, 2016). In this sense, online journalists' role has transformed from watchdogs to 'guidedogs' (Bardoel & Deuze, 2001, p. 94) and from gatekeepers to 'gatewatchers' who collect or aggregate news rather than produce it (Bruns, 2005, p. 17).

In order to explore hypertextual information pathways laid out by health news websites, a quantitative content analysis of external hyperlinks on nine Dutch-language health news websites will be conducted. Since online news media occupy a central position in the online health information landscape (Groselj, 2014), health news websites present interesting case studies for assessing how hypertext mediates between news audiences and health information. Not only are news media important sources for health information, individual news articles often trigger reader curiosity thus inciting additional health-information seeking (Tang & Lee, 2006). The presence of links in articles could therefore eliminate the cognitive burden on health-information seekers caused by information overload and frustration due to the inability to effectively cope with this overload (Macias et al., 2017).

7.2 Literature review

7.2.1 The meaning of hyperlinks in journalism

Theoretically, three main functions are attributed to hypertextuality in journalism (De Maeyer, 2012). First, hyperlinks function as a transparent sourcing mechanism by providing direct access to raw source material thus revealing otherwise covert news sourcing practices (Napoli, 2008). This function is also referred to as hyperlinks' citational function (Ryfe, Mensing, & Kelley, 2016). Second, hyperlinks to sources also enhance the perceived credibility of certain types of articles as well as readers' inclinations to seek further information (Borah, 2014; Chung, Nam, & Stefanone, 2012). Third, hyperlinks to webpages containing opposing views or different interpretations generate greater diversity of opinions in news, leading to what Gans (2011) calls 'multiperspectival news'. Ultimately, in all three of these functions, hyperlinks are metaphorical signposts that can guide news consumers through the complex digital health information landscape (Clarke et al., 2010; Hu & Sundar, 2010; Pearson & Kosicki, 2016).

Empirical hyperlinking studies in journalism extend over three successive research traditions that roughly correspond to three theoretical perspectives (De Maeyer, 2017; Doherty, 2014), i.e., the technological-reductionist normative, technological-reductionist empirical and technological-constructivist perspective (Vobič, 2014, p. 258).

First, from the technological-reductionist normative perspective, inspired by early technological optimism surrounding the popularization and commercialization of Internet browsers in the early 1990s, scholars were preoccupied with the question of whether hyperlinks, alongside other specific features of online news such as interactivity and multimediality, were in fact present in online news (e.g., Barnhurst, 2002; Kenney, Gorelik, & Mwangi, 2000; O'Sullivan, 2005; Paulussen, 2004; Tankard & Ban, 1998). In these early studies, online news was reduced to, and described by, the presence or absence of technological features against a backdrop of what online journalism –in theory –could and should look like (Deuze, 2003). The overall conclusion here was that online news made scant use of new technologies and therefore did not live up to its full potential.

The second wave of hyperlinking research is characterized by a strong emphasis on the distinction between internal and external linking (Dimitrova, Connolly-Ahren, Williams, Kaid, & Reid, 2003; Engebretsen, 2006; Oblak, 2005). Internal hyperlinks that keep news consumers within the boundaries of the website are the most common type of hyperlinks on news websites. Internal hyperlinks are widely used because, contrary to external hyperlinks, they keep visitors within the same website thus safeguarding traffic and advertising revenue (Chang, Southwell, Lee, & Hong, 2012). News websites' internal linking preference is dubbed 'jurisdictional protectionist' (Chang et al., 2012), 'gated cybercommunity' (Tremayne, 2005) or 'walled garden' phenomenon (Napoli, 2008, p. 64). Since external hyperlinks, which are not associated with financial considerations, are valued more than internal ones, the second wave of research rather bleakly (and uniformly) concluded that online

journalism had failed to adopt the technical affordances of the web to enhance news content (De Maeyer, 2017).

The underlying theoretical assumption here is that internal and external hypertextuality contribute in fundamentally different ways to the news content (Bardoel & Deuze, 2001; Deuze, 2003). While external hyperlinks to other offsite webpages open up the original news content, e.g., by linking to original sources in a direct and transparent manner thus boosting transparency, credibility and diversity (De Maeyer, 2012), internal hyperlinks are seen as embodiments of the commercialization and commodification of news rather than as an emanation of journalism's public service value to sustain open and democratic debate. As argued by Deuze (2003, p. 212) internal on-site hyperlinks could 'lead to a downward spiral of content' that 'tells the end-user that the "worldwide" web does not exist'.

Nevertheless, an excellent longitudinal study of hyperlinks at four leading Swedish newspapers found that external hyperlinks often 'linked to other businesses within the same parent corporation and also to business collaborations with external partners' (Karlsson, Clerwall, & Örnebring, 2015, p. 860, *italics mine*). Contrary to Deuze (2003), Karlsson et al. (2015) suggest that offsite external hyperlinks may be governed by protectionist marketing incentives, and may therefore be similar to internal hyperlinks. In order to survive the transition from print to digital publishing, newspaper industries have adopted new business models that rely on streams of revenue unrelated to the journalistic activities of the organization such as partnerships with web shops, telecommunications and other services (Villi & Hayashi, 2015). Therefore, despite the rise of external links observed by Karlsson et al. (2015), the question remains whether external links to affiliated websites add value to the original content in terms of source transparency, credibility and diversity.

In order to meet the methodological challenge posed by external links to affiliated businesses, De Maeyer (2013), in her dissertation on the use of hyperlinks in French-speaking Belgium, applies a three-way distinction for classifying hyperlink destinations, i.e., alongside internal and external hyperlinks, she adds 'fake external links' (translated from French, 2013, p. 167). Hyperlinks can therefore be classified as internal when they refer to another page on the same website, as pseudo-external (or 'fake external') when they refer to affiliated websites, and as genuinely external when they refer to websites from other organizations.

Starting in the 2010s, a third wave of research recognizes the overall dominance of internal hyperlinks in news, but differentiates between linking behavior in different types of online journalism (Sjøvaag, Moe, & Stavelin, 2012). Progressive genuine external hyperlinking is found most in citizen journalism (Paulussen & D'heer, 2013), blogs (Coddington, 2012) and alternative net-native explanatory news websites (Cui & Liu, 2017). Rather than considering hyperlinking as an entirely novel practice, these studies identify it as a process of normalization that is shaped by existing professional journalistic norms which differ according to the type of news outlet (Coddington, 2014).

The use of hyperlinks, in other words, varies according to ‘the socialization of the various media types in the profession of journalism’ (Cui & Liu, 2017, p. 853).

7.2.2 Health news websites in the online health information landscape and the centrality of search engines

Groselj (2014) who analysed 641 websites about the top 10 searched health topics according to search engine *Yahoo!* in 2010 (i.e., breast cancer, depression, diabetes, fibromyalgia, gall bladder, herpes, HIV, Lupus, pregnancy, shingles), found that news websites constitute the second largest group of websites providing health information (21%). Yet, since news is event-driven, some topics receive more attention from news sites than others. HIV (45%) and depression (40%) receive most attention, while pregnancy (4%) and fibromyalgia (6%) are covered less. News websites share this second position with informational portals that provide systematic health information (21%). Homepages with the purpose of representing the owner and his activities (mainly non-profit, e.g., physicians, patient organizations or government) (30%) are ranked first (Groselj, 2014). The remaining 48% of the online health information landscape is occupied by eight other types of websites (Groselj, 2014).

Typically, search engines feature as a trusted and frequently used starting point for seeking online health-information (Lee et al., 2014; Powell et al., 2011). Similarly, search engines are identified as important starting points for finding online news (Newman, Fletcher, Levy, & Nielsen, 2016; Ørmen, 2016). In response to this increased use of search engines, news organizations are concerned with search engine optimization (SEO) in order to give their news content maximal online visibility (Giomelakis & Veglis, 2016). A combination of SEO and a large archive of online news articles explain why news websites are among the top results when using search engines for health information. Nevertheless, while algorithmic gatekeeping has been criticized for being impersonal and for returning irrelevant results (Powell et al., 2011), public trust in these algorithmic gatekeeping processes remains high (Newman et al., 2016, pp. 112–114).

7.3 Research questions

Despite their wide use and perceived trustworthiness, search engines are also criticized for returning hyperlinks to irrelevant and even untrustworthy websites, especially in the context of health information (Lee et al., 2014). Relevant health news websites are, for the purpose of this study, defined as websites that provide news about health-related topics, produced by professional journalists, on a regular daily or weekly basis. Given the possible effects of the quality of online health information for public health, the following research question is proposed:

RQ1: Does a basic search in three popular search engines return relevant results for the query ‘gezondheidsnieuws’ (Eng. ‘health news’)?

Secondly, since news websites occupy a prominent position in the online health information landscape (Groselj, 2014), it is important to consider hyperlinks on those news websites as navigational objects that have the potential to mediate access to additional health information. Hyperlinks potentially add value to the original journalistic content if they link out to thematically related content, i.e., further information, source material, original scientific studies, etc. However, hyperlinking behavior on news websites is often motivated by financial considerations rather than journalistic ideals as envisioned in the first wave of hyperlinking research. The discord between commercial and journalistic incentives for using hyperlinks is often measured by quantifying the ratio of internal and external hyperlinks within websites. Despite the relative dominance of internal linking on news websites in general (Karlsson et al., 2015), previous research shows that the occurrence of internal and external hyperlinks varies according to news websites' socialization in the principles of institutional journalism (Cui & Liu, 2017). New entrants to the field, such as blogs, citizen journalism and net-native explanatory news websites, are more likely to use external hyperlinks than news websites of legacy media brands (Coddington, 2012; Cui & Liu, 2017; Paulussen & D'heer, 2013; Sjøvaag et al., 2012).

Recent empirical hyperlinking studies, however, suggest that external hyperlinks should not be treated monolithically (De Maeyer, 2013; Karlsson et al., 2015). Besides genuine external hyperlinks, so-called pseudo-external hyperlinks, which are technically external, but similar to internal hyperlinks because they link to domains pertaining to the overarching media conglomerate, are introduced. To my knowledge, no research has been conducted on the occurrence of pseudo-external hyperlinks on different types of news websites. Drawing on the arguments made above, the following research questions are put forward:

RQ2: *To what extent can technically external hyperlinks on different types of health news websites be categorized as pseudo-external hyperlinks?*

RQ3: *To what extent do external hyperlinks on different types of health news websites refer to health-related content?*

In an attempt to uncover whether pseudo-external hyperlinks are, like internal hyperlinks, commercially inspired, this study will measure whether hyperlinks to health-related content are either genuinely external or pseudo-external. Finally, in order to get a more fine-grained assessment of how hyperlinks mediate access to further health-related content, this paper will also identify the originators of the linked content, e.g., non-profits, patient organizations, pharmaceutical industries, etc.

RQ4a: *To what extent do pseudo-external hyperlinks refer to health-related content compared to genuine external hyperlinks?*

RQ4b: *If health related content is linked to, who is the originator of that content?*

7.4 Method

7.4.1 Environmental scan to identify health news websites

In order to identify health news websites as they might be encountered by a news audience that increasingly relies on search engines to locate news (Newman et al., 2016), a two-step environmental scan of search engine result pages was conducted (Bowler, Hong, & He, 2011). First, a keyword search was performed for the term ‘gezondheidsnieuws’ (Eng. ‘health news’) in three leading search engines (i.e., *Bing*, *Google* and *Yahoo!*). Since this research is situated in Flanders, the Dutch-speaking part of Belgium, the search queries were also performed in Dutch. Secondly, all URLs on the first five search engine result pages (henceforth, ‘SERPs’) were manually collected and coded using SPSS. Collection of URLs was limited to the first five SERPs as a measure of practicality. *Google* returned more search results per SERP due to the inclusion of sponsored results, i.e., 16 rather than 10–12, hence the slight overweight of *Google* search results in the sample. Yet, given *Google*’s overwhelming domination of the search engine market (i.e., in Europe, mobile and desktop searches combined, *Google* holds 91.78% of the market), this was not deemed problematic (StatCounter, 2017).

Besides providing insight in the usefulness of search engines for finding health news (RQ1), results of the environmental scan were used as a starting point for further analysis of the use of hyperlinks on health news websites. In other words, drawing on the environmental scan, the sample of health news websites under scrutiny in this study, includes nine health news websites that pertain to three categories of news websites with varying roots in the institution of journalism¹: (1) legacy media brands (A, B and C), (2) net-native websites by publishers with additional print brands (D, E and F), (3) net-native websites by publishers without print activities (G, H and I) (cf. Table 7-1).

Table 7-1. Overview of seed websites, individual external hyperlinks and distinct websites after page grouping

Seed website	Number of pages crawled	external hyperlinks (5428)	Number of websites (254)
[A] hln.be/subdirectory* <i>De Persgroep</i>	2	40	26
[B] telegraaf.nl/subdirectory* <i>Telegraaf Media Groep</i>	23	100	26
[C] knack.be/subdirectory*	18	167	34

<i>Roularta Media Group</i>			
[D] nu.nl/subdirectory <i>SANOMA</i>	21	92	22
[E] gezondnu.nl <i>MixCom Media</i>	319	811	23
[F] gezondheidsnet.nl <i>Senior Publications Nederland</i>	702	721	40
[G] e-gezondheid.be <i>E-Santé</i>	1328	1682	24
[H] gezondheid.be <i>Rossel/Mediahuis</i>	453	504	39
[I] gezondheidenwetenschap.be <i>CEBAM</i>	1284	1311	20
Total	4150	5428	254
*for legacy websites, only subdirectories related to health were used as starting point for further analysis. <i>Cursive</i> indicates publisher			

Researching SERPs, nevertheless, poses several methodological challenges due to their peculiar ontological status as research objects (Ørmen, 2016). Search results are, unlike *Tweets* or news articles, created in the act of searching and are increasingly personalized to the preferences of the searchers, in this case the researcher. Consequently, the research object does not exist outside the research. Firstly, personalization of search results was avoided by using private (or ‘incognito’) browsing modes. This study used *Google Chrome*’s incognito browser (version 55.0.2883). Private or incognito browsing allows to surf the web without leaving behind any traces of previous browsing history, cookies, passwords, favourites or bookmarks. Secondly, browser add-ons providing services such as the blocking of advertisements (e.g., *Adblock Plus*) or the evaluation of the safety of search results (e.g., *Web of Trust*) were disabled. While these strategies may effectively overcome some issues of personalization (i.e., the researcher’s location could still be determined based on the IP-address which was not anonymized), it may run the risk of becoming ‘too artificial and detached from real-world search situations’ (Ørmen, 2016, p. 118). Yet, because the aim of this paper is not to make generalizations about the search algorithms of the various search engines, the validity of the search results does not downplay the reliability and usefulness of the collected sample as a basis for analysis in this case study of online health news websites (Karpf, 2012).

7.4.2 Hyperlink mapping of nine health news websites

The collection of the hyperlinks was performed automatically using web-based software *VOSON* (Ackland, 2011). The software was used to crawl the nine health news websites (called ‘seeds’) identified through the environmental scan and to harvest all external hyperlinks encountered on the

seed page and on pages one click away from the seeds² (cf. Table 7-1 for an overview of crawled websites). Internal hyperlinks were not included because external hyperlinks, as argued by Deuze (2003), show the greatest theoretical potential added value for journalistic content regarding transparency, diversity and credibility. Additionally, previous research has already convincingly illustrated the overall dominance of internal hyperlinks in news websites (e.g., Karlsson et al., 2015).

After crawling each individual seed, a total dataset of 5428 unique hyperlinks was composed. Yet, rather than coding and visualizing 5428 individual pages, the dataset was cleaned via a page grouping process. This entails that hyperlinks referring to the same website were grouped together. Due to technical errors with the VOSON software related to mismatches between http:// and newer secure https://-protocols (R. Ackland, personal communication, February 20, 2017), page grouping was performed manually. Crawling news websites can also pose difficulties for crawlers because news websites are exceptionally rich in content and have very extensive sitemaps. After page grouping, the initial 5428 external URLs were reduced to 254 individual websites.

In this attempt to assess how external hyperlinks on health news websites guide users to other health-related information on the net, the 254 identified websites were content analysed using SPSS and visualized in a networked structure using *Gephi*. Firstly, it was identified whether hyperlinks were genuinely external or pseudo-external (RQ2). Exhaustive lists of all domains owned by the nine publishers in the sample were composed in order to complete this task. Secondly, the websites were coded according to whether or not they contained health-related content (RQ3, RQ4a). Thirdly, in order to get a more complete picture of the type of information that was linked to, further distinctions relating to the providers of the information were made (RQ4b). This categorization takes into account the heterogeneity that characterizes the contemporary biomedical field (Clarke et al., 2010): (1) policy-makers, (2) government institutions, (3) news websites, (4) social media, (5) industry, (6) sickness funds, (7) consumer organizations, (8) patient support and advocacy groups, (9) academic, (10) associations of health professionals and hospitals, (11) personal or community websites, e.g., blogs, *Wikipedia*, (12) civil society and non-profit health information providers, e.g., Red Cross, and a final miscellaneous category 'other', e.g., information about cookies, links to app-stores such as *Google Play* (13). Intra-coder reliability for the coding was measured using Cohen's kappa coefficient and ranged between 0.87 and 0.96 which indicates good agreement (Neuendorf, 2002). Statistical software SPSS was used for cross-tabulations, Chi-square analysis and further post-hoc testing, i.e., pairwise column comparisons and adjusted standardized Pearson residuals (Beasley & Schumacker, 1995).

7.5 Results

7.5.1 Finding health news using search engines

Firstly, out of 180 search results retrieved from the first 5 SERPs of 3 popular search engines, only 21 hyperlinks, which led to 9 individual websites, linked to authentic and up-to-date health news websites. Secondly, the most frequent results provided commercially biased health ‘news’. In fact, the most popular search result, albeit absent from *Yahoo!*, linked to a network of self-employed pharmacists. This website mainly contains business information for pharmacists, but also has a small category of irregularly updated health news highlighting a certain product or service. Another type of bias was found in self-proclaimed health news websites and blogs containing conspiracy theories. Authors of these websites transparently communicate their intention to act as guard dogs of health. Yet, rooted in negative personal experiences with traditional medicine they harbour a deep mistrust towards governments, pharmaceutical, food and chemical industries. They collect and write stories that confirm these previously held beliefs, e.g., about the dangers of artificial sweeteners, and publish this on their website. This type of bias is called confirmation bias (Leman, 2007).

It is, however, important to distinguish between biased information and biased information that is intentionally deceptive. All three search engines returned links to five different fake news websites promoting the same contested herbal weight-loss supplement, *Garcinia Cambogia* (Astell, Mathai, & Su, 2013). These websites systematically presented homepages with the header ‘*gezondheidsnieuws*’ (Eng., ‘health news’) and various other news categories (e.g., mental health, sexual health, fitness, etc.), yet these categories are just a gimmick because they are images rather than links to other news stories. None of the surrounding text provides links to a profile page nor to legitimizing information on other websites despite the presence of the logos of other news brands, i.e., ‘*gezondheidsnet*’ and ‘*telegraaf*’, suggesting endorsement by these brands. In fact, these websites did not contain any links except for a link to a webpage where the product that is being appraised can be purchased.

Overall this means that for this sample only 14.4% of search results referred to relevant health news websites (RQ1). Nevertheless, since most user searches are often limited to the first page of search results (Macias et al., 2017), more important than the frequency of a particular search result is its rank. *Google* provides six different relevant health news websites on its first SERP, *Bing* shows five, but *Yahoo!* only shows one relevant search result on the first SERP. If we continue to the second page, *Google* and *Yahoo!* add one more relevant search result, while *Bing* adds two more thus equalling *Google*. Generally speaking in terms of ranks and relevance, *Bing* and *Google* yield the best results (Table 7-2). All three search engines provided a hyperlink to one of the websites that aggressively promote *Garcinia Cambogia* on the first SERP. *Yahoo!* returned the lowest number of relevant results, but also the lowest number of websites that contain misinformation.

Table 7-2. Health news websites retrieved via environmental scan

Bing	Google	Yahoo!
(2) gezondnu.nl	(3) gezondheid.be	(2) gezondheid.be
(3) nu.nl	(4) hln.be	(11) nu.nl
(4) gezondheidsnet.nl	(5) nu.nl	(40) gezondheidsnet.nl
(5) gezondheidsnet.nl	(6) gezondheidsnet.nl	(44) gezondheidsnet.nl
(8) e-gezondheid.nl	(7) gezondheidsnet.nl	(47) gezondheidsnet.nl
(12) gezondheid.be	(9) knack.be	
(13) knack.be	(15) e-gezondheid.be ^a	
(14) gezondheidsnet.nl	(18) e-gezondheid.be ^a	
(40) telegraaf.nl	(32) e-gezondheid.be ^a	
(48) telegraaf.nl	(49) e-gezondheid.be ^a	
	(65) e-gezondheid.be ^a	
^a asterisk indicates sponsored result		
(#) bracketed number indicates rank on SERP		

Table 7-3. Cross-tab for type of external hyperlink by website type in % (N= 254)

Domain	Website type			Total
	Net-native	mixed	legacy	
Pseudo-external	13.3 _a (-4.76)	13.1 _a (-4.84)	72.4 _b (9.5)	33.5
Genuinely external	86.7 _a (4.76)	86.9 _a (4.84)	27.6 _b (-9.5)	66.5
$\chi^2(2, N=254) = 90.16, p=0.05$ Note: Values in the same row not sharing the same subscript are significantly different at the adjusted alpha-level using the Bonferroni method. Bracketed numbers below column proportions represent the adjusted residuals. All adjusted residuals are significantly different at the adjusted alpha-level using Bonferroni method. Critical z value = 2.64				

7.5.2 Mapping external hyperlinks in health news websites

Overall, 33.5% of the technically external domains belong to the portfolio of the media conglomerate to which the seed website pertains. As illustrated in Table 7-3, there is a significant interaction between the occurrence of hyperlinks to pseudo-external domains and the type of website ($\chi^2(2, N=254) = 90.16, p = .05$). Further pairwise comparisons of column proportions using a z-test with Bonferroni adjustments to the alpha-level of 0.05, indicates a statistically significant difference between the legacy news websites and the remaining two categories, but no statistical difference between the occurrence of pseudo-external hyperlinks in net-native and mixed tradition websites. The adjusted standardized Pearson residuals indicate that legacy news websites explain most of the observed variance. In other words, linking behavior of legacy news brands significantly differs from brands that originated online. The website publisher's involvement in other print activities alongside

the net-native health news website has no significant impact. Both net-native health news websites and websites with a mixed tradition link to pseudo-external domains less than legacy news websites.

Even though the crawl was limited to health news, only 52.4% of the linked to domains were health-related. Pairwise comparisons of column proportions indicate a statistically significant difference between legacy websites, on the one hand, and the websites in mixed tradition and net-native websites, on the other hand ($\chi^2(2, N=254) = 72.05, p = .05$). The adjusted standardized Pearson residuals again demonstrate that legacy news websites explain most of the variance (cf. Table 7-4). Furthermore, there appears to be a statistically significant difference between the occurrence of health-related hyperlinks and the type of hyperlink. As demonstrated in Table 7-5, only 24.7% of pseudo-external hyperlinks refer to health-related content, contrary to 66.3% of genuine external hyperlinks.

Of those 52.4% of health-related domains, Table 7-6 illustrates that almost one in five domains represent other news websites (19.5%). Yet, e-shopping websites (15%) are also frequent. These websites sell products with health-advancing characteristics, but which are not pharmaceuticals. For example, beauty products with nursing aspects, food supplements, ergonomic mattresses to alleviate back pain or organic foods. Other linked to domains pertain to established sources: associations of medical professionals and hospitals (15%), government (14.3%) and academic sources (12%).

Table 7-4. Cross-tab for health-related hyperlinks by website type in % (N = 254)

Health-relatedness	Website type			Total
	Net-native	mixed	legacy	
No	22.9 _a (-5.50)	34.5 _a (-2.94)	83.9 _b (8.35)	47.6
Yes	77.1 _a (5.5)	65.5 _a (2.94)	16.1 _b (-8.35)	52.4

$\chi^2(2, N=254) = 72.05, p=0.05$
 Note: Values in the same row not sharing the same subscript are significantly different at the adjusted alpha-level using the Bonferroni method. Bracketed numbers below column proportions represent the adjusted residuals.
 All adjusted residuals are significantly different at the adjusted alpha-level using Bonferroni method. Critical z value = 2.64

Table 7-5. Cross-tab of (pseudo-)external hyperlinks and health-relatedness in % (N=254)

Hyperlink type	Health-relatedness	
	Yes	No
Pseudo- external (n=85)	24.7	75.3
Genuinely external (n=169)	66.3	33.7

$\chi^2(1, N=254) = 39.17, p=0.05$

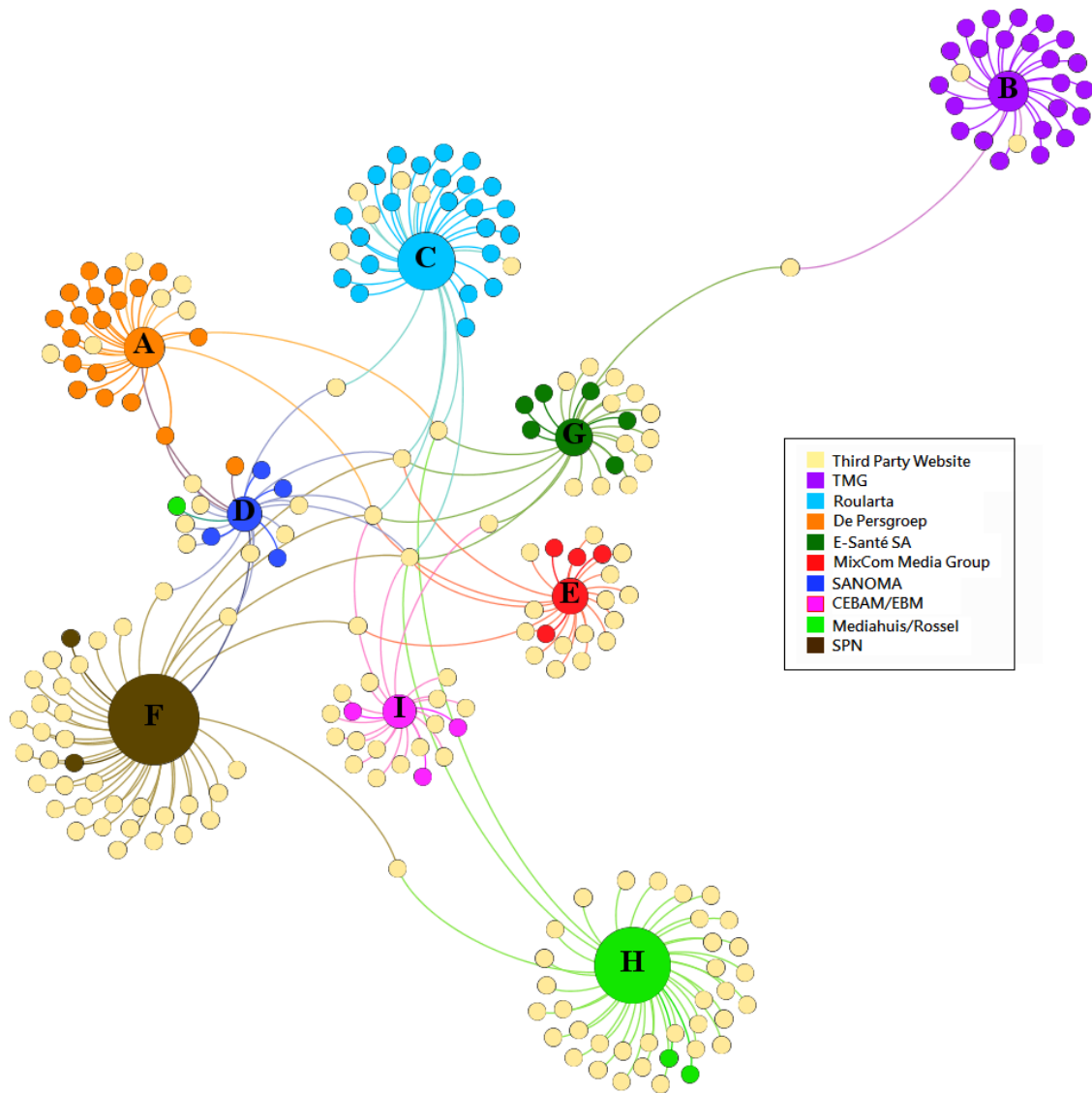
Table 7-6. Who provides the linked to health information? (in %, n = 133)

News websites	commercial	Associations of health professionals and hospitals	government	academic	Patient support and advocacy	Civil society and non-profit	Sickness funds	Personal homepage or community website	Consumer organization	other	Social media
19.5	15	15	14.3	12	9	7.5	2.3	2.3	1.5	0.8	0.8

Despite thematic coherence of the crawl, Figure 7-1 illustrates that the websites in the sample, represented by various nodes, are only loosely connected. Using graph theory terminology, one could say that the mapped hyperlink network of health news websites is low in density. Conventionally, density is expressed as a number from 1 to 0. A complete graph in which each individual node is connected to every other node in the graph would have 100% density, i.e., graph density of 1 (Scott, 2017, p. 81). The density of the graph in Figure 7-1 is 0.009. Every node is in some way connected to the network, hence the network does not contain isolates. Nevertheless, website B, *telegraaf.nl*, is incidentally connected to the network through a single shared domain (i.e., *ec.europa.eu*) with *e-gezondheid.be*. Therefore, *telegraaf.nl* is not an isolate.

The north–south orientation of Figure 7-1 is of no importance. What is important, is the distance between the nodes and their centrality. A force-based algorithm (ForceAtlas2), in which linked nodes attract and non-linked nodes repel each other, was used for the spatialization of the nodes (Jacomy, Venturini, Heymann, & Bastian, 2014). A clear divide can be observed between, on the one hand, the legacy news websites in the upper part of the graph, and, on the other hand, net-native and mixed tradition news websites. The spatialization thus corresponds to tendencies found in the contingency tables above whereby the mixed tradition websites sometimes lean towards the linking behavior of legacy websites and other times to that of net-native websites.

Figure 7-1. Hyperlink map indicating affiliation with overarching media conglomerate



The coloured nodes, which represent organizational affiliations of the nine media conglomerates, illustrate that websites A, B and C (i.e., the legacy websites) each form a hub of websites pertaining to the respective overarching media conglomerates. There are no direct links between the seeds except for *nu.nl* (D) which links out to *hln.be* (A) and to *gezondheidsnet.nl* (F). Furthermore, *nu.nl* is also the only website in the sample that links to competing news websites; i.e., *trouw.nl* (*De Persgroep*) and *standaard.be* (*Mediahuis*). The general absence of hyperlinks to the competition combined with a relatively low number of health-related websites (cf. Table 7-4) contributes to the graph's low density. Hyperlinks to social media, mainly *Twitter*, *Facebook*, *Pinterest* and *Google Plus* hold this network together. It is common for news websites to include social media handles above every news article to increase traffic. In other words, despite thematic coherence between the crawled websites, it is

unlikely that news users will encounter content from other online health news sites if they directly go to a specific health news website as opposed to using search engines for locating health news.

7.6 Conclusion and discussion

Drawing on an automated content analysis of hyperlinks on nine different health news websites that were identified via search engines, this study examined how hyperlinks mediate access to online health information in search engines and health news websites across three different types of news websites, i.e., legacy news websites, net-native websites with a mixed tradition and exclusively net-native websites. Viewing hyperlinking as a process of normalization shaped by professional journalistic norms, this paper adopts a technological constructivist approach to describe patterns of hypertextuality at different kinds of health news websites (Coddington, 2014; Cui & Liu, 2017; Vobič, 2014).

Most importantly, this paper demonstrates that the distinction between genuine and pseudo-external hyperlinks is meaningful for journalism because pseudo-external hyperlinks less frequently present health-related information than genuine external hyperlinks. The occurrence of pseudo-external hyperlinks, therefore, resonates well with the financial motivations underlying the occurrence of internal hyperlinks. Both pseudo-external hyperlinks and internal hyperlinks reflect protectionist linking strategies that run counter to the normative ideals of diversity and source transparency as envisioned by early online journalism scholars (Deuze, 2003). It is paramount that future quantitative analyses move beyond the traditional internal-external distinction to include pseudo-external hyperlinks that refer to other websites in the portfolio of overarching media conglomerates and compare them to internal hyperlinks.

Furthermore, the inclusion of external hyperlinks to sources, original documents and raw materials, as opposed to pseudo-external hyperlinks to thematically unrelated content, encourages independent evaluation of news content (Kovach & Rosenstiel, 2001). As a ritual of transparency hyperlinks can increase credibility and trust in journalism (Chung et al., 2012; Karlsson, 2010). As recent surveys indicate, trust in journalism is low (European Broadcasting Union [EBU], 2017; Swift, 2017). Hyperlinks, therefore, serve a higher – and much needed – goal for the survival of journalism in general. But also for health reporting in particular, since the latter constitutes a journalistic niche that is prone to rely on ‘linkable’ documents such as peer-reviewed journal articles or statistical reports to support claims.

Secondly, this study provides supporting evidence for the idea that news websites’ hyperlinking behavior varies according to the type of news website and its presumed associated socialization within institutional journalism (Coddington, 2012, 2014; Cui & Liu, 2017; Sjøvaag et al., 2012). The results suggest that media brands originating in print behave differently than those originating online, since

no significant differences were found between net-native brands by publishers engaging in print and digital activities, and net-native brands by publishers who exclusively operate online.

This is also illustrated by the spatialization of the health news websites in the hyperlink map (Figure 7-1). The legacy websites are clearly pushed towards the periphery of the network and make scant use of genuine external hyperlinks (Table 7-3). Additionally, contrary to what cross-tabulations tell us, a visualization of the network shows that both legacy and net-native news media refrain from establishing connections amongst each other. Only one health news website directly links to other competing health news websites. Therefore, despite variations in hyperlinking patterns between legacy brands and net-native brands, the overall absence of direct links to competing health news websites suggests that such hyperlinks are considered as competitive threats by nearly all news websites in the sample (Vobič, 2014). Nevertheless, while this might be true in the short-term, Weber (2012) has demonstrated that, in the long run, establishing hyperlink ties with other (younger) news organizations strengthens the position of that organization in the network thus boosting traffic.

Interestingly, as illustrated in Table 7-5, hyperlinks often refer to other news media for presenting additional health-related information. While this finding might seem to contradict the idea that news websites' commercial incentives discourage redirecting the end users' attention towards competing news outlets, closer inspection reveals that the linked to news websites are international and mostly in English or French. In other words, these news websites are not considered as direct competition in the marketplace of attention (Pearson & Kosicki, 2016; Webster, 2012).

Finally, this study illustrates that using search engines as starting points for navigating online health information landscapes is problematic. The SERPs are fraught with biased, unreliable and commercial websites. Nevertheless, while commercial biases can be relatively easily identified by checking an organization's 'about us-webpage', recognizing various types of misinformation or fake news such as, conspiracy websites and aggressive promotional content disguised as genuine news to boost credibility, is much harder (Tandoc, Lim, & Ling, 2017). The environmental scan also highlights the need for broadening the scope of research into misinformation, and more recently fake news, to include topics such as health alongside political topics. Given the obstacles encountered in this case study and since large-scale surveys emphasize the widespread reliance on search engines for news and health information (McDaid & Park, 2010; Newman et al., 2016), future research seems warranted. Yet, so far, investigations of SERPs for news are still limited (Ørmen, 2016).

NOTES

1. For more information on the classification and on the organizational background of these websites, please contact author.
2. For all crawled seeds the *robots.txt-file* was checked to ensure the crawler was not disallowed to visit (parts of) the seed website. The robots.txt-file is publicly available and can be viewed by adding '/robots.txt' after the website URL, e.g., <http://www.bbc.com/robots.txt>. With this Robots Exclusion Protocol web designers provide explicit instructions for bots. For example, search engines use bots to crawl and index the Internet's webpages. Web designers may refuse bots from certain areas, or impose a crawl delay in order not to overload the server. Nevertheless, some bots can still ignore the robots.txt, e.g., malware bots harvesting e-mail addresses (<http://www.robotstxt.org>).

8 WHEN MEDICINE MEETS MEDIA

How health news is co-produced between health and media professionals

Abstract

From the 1980s onwards, the biomedical sector has become intricately interwoven within academic, industrial, state, and media structures (Clarke et al. 2003). Against a backdrop of biomediatization theory (Briggs and Hallin 2016) which conceptualizes the production of health news as a multi-sited process of co-production, rather than as a linear translation of biomedical knowledge from the hierarchically superior domain of biomedicine to the media, we provide a holistic interpretive framework for examining the production of health news. By means of in-depth elite interviews (N=36) with CEOs and communications officers from a variety of health stakeholder organizations that often feature as news sources in health news, as well as with editors of leading media outlets in Belgium, this article finds that the inherent complexity of biomedicine constitutes a delicate context for finding reliable health news sources. Interestingly, and contrary to previous research, our results challenge health journalism's assumed reverence for scientific authority. Second, the fierce struggle for attention in the new hybrid media environment, threatens news organizations' financial viability thus inducing an unanticipated and unwanted difference in quality between free news and news behind a paywall which could further increase existing health inequalities.

Keywords

biomediatization; biomedicalization; health news; hybrid media system; sourcing; qualitative interviews

Reference

Stroobant, J., Van den Bogaert, S. & Raeymaeckers, K. (2018). When medicine meets media: How health news is co-produced between health and media professionals. *Journalism studies*, online first, <https://doi.org/10.1080/1461670X.2018.1539344>.

8.1 Introduction

News media constitute a significant source for the public's understanding of health-related issues (Seale 2002). As such, news about health has the potential to alter health perception and associated health behaviours (Dixon and Clarke 2012; Nielsen and Nordestgaard 2015; Wakefield, Loken, and Hornik 2010). Consequently, health news is a well-studied topic among medical and health communication scholars, but is somewhat overlooked within journalism studies where the bulk of research focusses on hard news such as political topics rather than on soft news, including lifestyle-oriented journalism (Briggs and Hallin 2016, 3; Hanusch 2012). That media become primary sources of health information for the public reflects the earliest stage of mediatization and acts as a requirement for further mediatization (Strömbäck 2008).

Health journalism is often understood as a linear translation of complex medical information that flows from biomedical elites, through traditional media, after which it eventually reaches the public (Briggs and Hallin 2016; Nelkin 1996; Seale 2002). Despite well-known concepts within mass communication theory such as mediatization that stress the pervasiveness of media contents and formats in the practices of various societal sectors (Altheide and Snow 1979; Lundby 2014; Strömbäck 2008), linearly-oriented thinking is still present in many investigations of health journalism published in peer-reviewed journals in the fields of medicine (e.g. Huseman and Fisher 2015; Tong et al. 2008), health communication (e.g. Atkin et al. 2008; Ostergen et al. 2015) as well as within professional communities of health journalists themselves (e.g. Forsyth et al. 2012; Hinnant and Len-Riós 2009b). According to Briggs and Hallin (2016), this narrow conceptualization of health communication has driven the study of health news to the periphery of journalism studies, even when media coverage of health is omnipresent in the contemporary media environment.

By means of in-depth interviews with both media and health professionals (N=36), this paper qualitatively explores how health news is *co-produced* by a diverse range of health *and* media professionals against a backdrop of biomediatization theory (Briggs and Hallin 2016). Additionally, since an empirical ground for analysing the intricacies of the current media ecosystem is somewhat underexplored in (bio)mediatization theory (Adolf 2017; Andersson 2017), this paper will also pay attention to the subtleties of news-making in a rapidly changing and hybrid media system (Chadwick 2013). Thus, the aim of this paper is twofold. First, we want to explore the relations of co-production that bridge the domains of media and health. Second, we want to address how the health/media interface is influenced by the internal changes of the contemporary hybrid media system. Concretely, this translates into the following two research questions:

RQ1: How is health news co-produced between health and media professionals?

RQ2: How does the hybridity of the current media system impact the health/media interface?

8.2 The Transformation of Medicine: Biomedicalization and biomediatization

In order to grasp the full complexity of how health news is produced, we will draw on the biomedicalization thesis as formulated by Clarke et al. (2003). The biomedicalization thesis rests on the idea that new technoscientific innovations such as, “molecular biology, biotechnologies, genenimization, transplant medicine, and new medical technologies” have drastically altered the institutional organization of the medical field and its influence over other social domains as well as the production and distribution of health knowledges (Clarke et al. 2003, 162). Parallel to mediatization which broadly refers to the expansion of media (Strömbäck 2008), biomedicalization denotes the expansion of the social and cultural influence of biomedicine into other life domains. Eating, for example, is increasingly treated in biomedical terms as an activity intended to optimize people’s health, not just as something that one can enjoy or that one should do simply to stay alive (Saikkonen 2017). Biomedicalization is also characterized by an intense commodification of biomedicine which has given rise to hybrid collaborations between the industry (not just the pharmaceutical and medical device industry, but also the food industry!), science and the government.

However, as the number of collaborations and stakeholders in increasingly market-oriented healthcare systems steadily expand, it is often hard for both the public and journalists to identify the underlying interests of those who communicate health information (Clarke et al. 2003; Veloudaki et al. 2014). Especially given the rise of possibilities to communicate directly with mass audiences via the Internet. This transformation of the production and distribution of health knowledge to include more health stakeholders, Clarke et al. (2003) argue, is characterized by a diversification of the sources that produce health information as well as by a diversification and disintermediation of the channels via which that information is distributed (Clarke et al. 2003; Eysenbach 2008). This heterogeneity of sources includes biomedical researchers, individual physicians, government institutions, politicians, business people, patient organizations, lay people, as well as a wide array of news organizations (Stroobant et al. 2018; Hallin, Brandt, and Briggs 2013; Verhoeven 2008). As a consequence of the disappearance of intermediaries in the distribution and production of health knowledge, audiences today are drowning in information (Lee et al. 2014). Yet, at the same time, the increasingly complex nature of the field magnifies the need for reliable health information from experts with a thorough understanding of the biomedical field (Albæk 2011; Forsyth et al. 2012, 134-135).

For developing the concept of biomediatization, Briggs and Hallin (2016) build on the biomedicalization thesis and integrate it within the scholarly framework of mediatization, thus coining the term “biomediatization”. While this term is certainly a “mouthful” (Briggs and Hallin 2016, 9), it provides a welcome framework for studying health news. It is useful exactly because, contrary to the linear-reflectionist view on health news (Hallin and Briggs 2015), it does not assume that biomedicine and journalism constitute two separate entities which are naturally involved in a hierarchical relationship in which the latter is inferior to the former for the production of health knowledge (Briggs

and Hallin 2016, 4). Biomediatization rejects the claim that medical objects in health news are merely a secondary representation (or translation) of objects that were previously constructed by the hierarchically superior biomedical community. In the biomediatization framework, health professionals are conceived as deeply enmeshed within the structures of media. Rather than representing medical objects, media partake in the construction of medical objects without, of course, reducing disease and illness to mere social constructs (Briggs and Hallin 2016). Biomediatization theory thus explicitly refutes linearly-oriented projections of the production and circulation of health knowledge from one domain to another.

Essentially, biomediatization entails a multi-sited process of co-production between health and media professionals (Briggs and Hallin 2016). The idea of *co-production* is central to biomediatization because “biologies are connected from the get-go with their media manifestations as they are dispersed via articles in biomedical journals, newspapers, television broadcasts, websites, tweets and complex entanglements of professional logics and practices” (Briggs and Hallin 2016, 13). Medical objects are thus never exclusively medical nor media-related, but always co-produced. However, equally central to biomediatization and serving as empirical proof of the process of co-production, health news production is characterized by a second process, viz. “boundary-work” (Briggs and Hallin 2016). The process of boundary-work (Gieryn 1983), by which health and media are continuously constructed as separate, explains why biomediatization has been overlooked before. If those involved maintain, through practices of boundary-work, that health and media are separate, it becomes harder to see how deeply these two domains are in fact intertwined. For instance, health journalists make it appear as if journalism and biomedicine are separate by stressing that the health of the audience is “not their [i.e. the journalists’] problem” even when they are committed to evidence-based medicine and effective public health communication as part of their journalistic role conception (Briggs and Hallin 2016, p. 207). In other words, at the heart of biomediatization is the assumption that the imbrication of the logics of health and media is always complemented by efforts to stabilize and preserve the identity of each domain (Briggs and Hallin, 2016).

However, the empirical focus of the original work on biomediatization seems to obscure the role that is potentially played by the technologies that make up the contemporary hybrid media system (Chadwick 2013). As Briggs and Hallin (2016, 14-15) themselves acknowledge, their focus on the mainstream media does not automatically refute that the increasing fragmentation and decentralization of media systems can also impact the process of biomediatization. Our analysis will therefore also take into account transformations within the field of media itself that go beyond the specifics of covering health. In doing so, this study integrates recent developments, both within mediatization and journalism studies, that stress the role of materiality in journalism (e.g. Anderson and De Maeyer, 2015; Boczowski 2015; Lievrouw 2014) and, more broadly, in research on mediatization (e.g. Adolf, 2017; Bolin, 2014; Jansson, 2014) within a framework of biomediatization.

In the current highly competitive and highly saturated media ecosystem, traditional ‘old’ and ‘new’ media co-exist. Co-production not only involves negotiations between media and “health” logics, rather co-production is also influenced by the competition between newer and older media logics. New media technologies do not replace older ones, but mutually influence each other, ultimately culminating in a hybrid media space in which each technology occupies a specific position (Chadwick 2013). Accordingly, although it has been predicted many times, newspapers still exist in their physical printed paper form (Picard 2014). The analytical distinction between ‘old’ and ‘new media’, therefore, is still relevant, yet the real challenge is to determine “where these distinctions matter and where they are dissolving” (Chadwick 2013, 4). Especially because the power relations associated with ‘old’ and ‘new media’ are changing as well. Most importantly, hybrid media systems provide ample opportunities for health stakeholders to directly communicate with their audience without mediation by the journalist-gatekeeper, but also for ordinary citizens to produce and distribute personal stories, or even for patient organizations (possibly backed by pharmaceutical companies) to raise awareness for particular diseases via their own platforms. Hybridity of the media system, in this sense, acts as a requirement for biomedicalization, and thus ultimately also for biomediatization. An excellent, international example of such a hybrid health news story is the ALS Ice Bucket challenge in which viral videos of people pouring buckets of icy water over their heads set the agenda for traditional media and ultimately for health policy itself (Jang, Park, and Lee 2017).

Finally, while neither mediatization nor biomediatization are normative theories (Lundby 2014), normative questions regarding journalism’s civic adequacy in financially difficult times for a domain as complex as health are highly relevant and will be addressed in the conclusion.

8.3 Data and Method

Given the idea that conceptualization of media must be grounded in empirical observations rather than stemming from a preconceived theorization of ‘the media’ as a taken-for-granted atomic notion (Chadwick 2013, 4), our investigation of the production of health news in the contemporary biomediatized hybrid media system draws on qualitative in-depth interviews with health and media professionals (N=36). Since biomediatization does not depart from a strict analytical division between media and medicine but from the idea of multi-sited co-production, the selection of respondents was guided by a preliminary stakeholder analysis of the Belgian healthcare system (Van den Bogaert et al. 2017). For the purpose of this study, a total of seven categories of stakeholders that are central to the organization of the Belgian healthcare system were identified (cf. Table 8-1). While these categories are largely self-explanatory, there is one category, i.e. sickness fund agencies, that requires some additional explanation. Similar to neighbouring country Germany, health insurance in Belgium is statutory. There are six general sickness fund agencies (in health sociology referred to as ‘Health Insurance Associations’ or ‘HIAs’) (to which the smaller regional ‘sickness funds’ pertain) which act

as self-governing, third-party, payers that reimburse basic medical care (and products) on behalf of the government to the Belgian population (Nonneman and van Doorslaer 1994). In this study only two sickness fund agencies, covering 61.25 per cent of the Belgian population, were included (RIZIV 2017).

Table 8-1. Overview of the sample

Stakeholder	Number of organizations	Number of interviews
Media	6	6
Pharmaceutical industry	3	5
Government institutions	4	8
Sickness fund agencies	2	6
Patient and consumer organizations	4	4
Organizations of scientific medical experts	2	2
Associations of health professionals	3	5
Total	24	36

Since this study does not examine news practices but, more generally, the relations among different sectors of society, several high-level and senior staff were selected rather than low-level employees or individual journalists. Depending on the size of the organization, we interviewed the chief communication officer and the general director or CEO. Several key figures were interviewed in order to distinguish between the organizations' stance and the interviewees personal opinion as well as to offer an additional quality check (Berry 2002; Patton 1999). The interviews were conducted between March and October 2015 and lasted approximately 40 minutes to one hour and 20 minutes.

For the media organizations this strategy implied interviewing the editors-in-chief. The interviews were conducted between January and February 2016 and included the four editors of the largest Flemish newspapers as well as two editors-in-chief of monthly magazines with a specialized health section. The editors-in-chief have several years of experience and function as key figures in newsrooms. They were chosen as respondents because they manage collaborations between various beats, various media types (i.e. offline, online, social) and, importantly, also between the marketing and journalistic side of the newspaper or magazine. The organizational component of journalism is important to understand the internal dynamics within newsrooms as well as their relation with other stakeholders in the field of health. The inclusion of respondents who work for lifestyle magazines rather than newspapers is motivated by previous research which has demonstrated that lifestyle-oriented journalism in particular is most vulnerable to strategic industry-orchestrated PR-campaigns aimed at influencing news coverage (De Dobbelaer et al. 2017). Ultimately, since the Belgian media

market is characterized by a high degree of concentration (VRM 2016), adding the magazine editors to the sample also implies that the three largest Flemish² media groups are represented in our sample.

To gather detailed information about relations between media professionals and expert health stakeholders³, a semi-structured guide with open-ended questions was used. Respondents were asked general questions about their organization's goals and communication strategy or editorial policy. Example questions are: "What are the main goals of your organization?", "What are you responsible for in your organization?", "According to your organization, what is health?" The interviewees were then asked about their organization's relation with the media as well as about whether and why media were important. (The editors-in-chief were asked the opposite, i.e. about their relation with the health stakeholders.) And, if media were important, follow-up questions as to whether and how the interviewee is involved in the organization's relation with the media were asked in order to discover the nature of that relation. But also more generally, we asked which health topics they thought deserved more media attention, which topics get too much media attention as well as which topics they think are prone to "misunderstandings". To conclude the interview, respondents were asked whether they wanted to talk about things that we did not ask, but which they felt were important.

Before starting the interview, each respondent signed a confidentiality agreement and was given an explanation about the research project, its scope and privacy procedure. When quoting from the interviews we will not disclose the function, nor media brand or specific stakeholder organization to which the respondent pertains in order to assure anonymity as agreed upon in the confidentiality agreement. Full recording and transcription of the interviews (Aberbach and Rockman 2002), and Computer-Assisted Qualitative Data Analysis techniques (CAQDAS) were used to ensure the quality of the data and results.

The analysis of the transcribed interview data was performed as a recurrent multi-step procedure: new codes were added and old ones deleted or modified in several rounds of coding until the two coders reached consensus⁴ (Bazeley and Jackson 2013, 273). Although consensus among coders does not necessarily imply a better quality analysis, the authors of this paper did strive for maximal agreement as an additional quality check (Bazeley and Jackson 2013, 273). In a first phase, two coders simultaneously, yet independently, coded the interviews and identified dominant topics. The analysis largely drew on the theoretical premise laid out above but was also open to new codes that emerged from the interviews. For instance, "patient empowerment", was one such topic. Other examples of themes are: the complexity of the healthcare system; online health information; conflicts of interest; PR strategies; transparency, etc. Secondly, these codes were cross-referenced with codes that identified those moments when the respondents mentioned they had contact with each other. Most obviously, this entailed the practice of news sourcing but also to advertising or other types of contact. A subdivision was made between the channels that were used for communicating (e.g. social media, press release, press conference, informal contact, etc.); the type of information that was exchanged (e.g. statistics, documents and raw data, opinions/interpretations of raw data, contact information for

other sources, etc.); and the motivations for exchanging information or contacting stakeholders (e.g. corporate branding, sourcing, health education, etc.). Thirdly, the two coders then identified whether the respondents perceived tensions regarding their own professional routines by combining insights from previous coding rounds.

8.4 Results

This section is organized according to the two overarching topics discussed in the literature review, i.e. biomediatization and the hybridity of the contemporary media system. First, we will discuss how the respondents perceive and experience the transformations of health and biomedicine which involves: the increasingly technical and complex nature of biomedicine, market-driven models of healthcare, an increased number of health stakeholders, and entanglements between industry, government and academia (RQ1). Secondly, we will pay attention to the implications of the hybridization of the media system for the production and dissemination of health news because it is assumed, in line with material perspectives on mediatization, that media technologies (not just general notions of media as institutional or cultural entities) are also part of the co-production of health news (RQ2). Representative interview excerpts will be used to illustrate our argument.

8.4.1 Biomediatization and the Inherent Complexity of ‘Biomedicalized’ Biomedicine

The increasingly market-oriented nature of Western healthcare systems has generated a tsunami of information subsidies from a broad range of health stakeholders (Stroobant et al. 2018). Not in the least from pharmaceutical companies who dispose of sufficient financial resources to develop effective communication strategies (cf. Morrell et al. 2015). Naturally, when asked about the influx of information subsidies from industry sources, all editors in the sample adopted a very defensive attitude. As a rule they said that information subsidies from the industry were either completely discarded or else treated with great caution. The respondents use words such as “*careful*” or “*sceptic*” to describe their attitude towards industry sources. As illustrated by the following quotes, such an attitude is considered necessary because pharmaceutical industries’ PR-activities are described as “*cunning*” or even “*aggressive*”.

“The interests at stake for them [i.e. pharma] are huge. Media coverage also has got some irrationality to it. You don’t know in advance what’s going to break, which case will be covered. The damage is potentially enormous. So I can imagine that they [i.e. pharma] definitely try to influence coverage very heavily.” [...] “I think the way in which they assemble press releases is very moderated, very calculated, just like their research expenditure. It takes a sceptic attitude and a critical mind.” (editor-in-chief quality newspaper, #1)

“We’ve abandoned the idea that press releases from pharmaceutical companies or research centres are worth mentioning during morning meetings.” (editor-in-chief quality newspaper, #2)

Interestingly, as the quote below demonstrates, one editor-in-chief explicitly mentioned that sometimes they deliberately choose not to disclose industry ties in order not to discredit the news story in the eyes of readers.

“Well, actually that’s very simple. For example, [brand name dairy producer] is organizing a conference about probiotics. This is a very frequent example. Fine, we’ll go to the conference because probiotics are super interesting, and we’ll write an article about it that doesn’t mention [brand name]. And [brand name] knows they won’t be mentioned. They are organizing this conference because they want to raise awareness concerning probiotics. So, at that point, the brand is of lesser importance. All the brand can do is hope that we decide to write a story about probiotics and that people will eventually buy their products, although ultimately it is not my job to advertise. Of course [brand name] can advertise at that point and hope the readers make the connection themselves, but we’re not going to help them achieve this.” (editor-in-chief magazine, #6)

Thus, rather than completely discarding them, information subsidies from industry sources may be used as triggers for story ideas during the first phase of the news sourcing process, after which, in the second phase, additional news sources are gathered. The reluctance to using or even mentioning information subsidies from corporations, illustrates that the perceived neutrality of news sources does not only matter for explanatory means, but also for the role these sources play as trust-inspiring devices in the eyes of audiences (Albæk 2011). The resulting story then does not mention that the initial story idea came from a corporate press release. Nevertheless, in spite of journalists’ good intentions, this effort of boundary-work intended to enlarge the perceived distance between the dairy producer and the magazine, does not counter the agenda-setting efforts implicit in sending out press releases. On the contrary, in line with the theory on biomediatization, this particular instance of boundary-work precisely confirms the thesis that media and medicine are intricately connected.

The idea that more neutral scientific “white coat” sources eclipse corporate and government sources as credible and legitimate producers of health knowledge is also apparent in the health stakeholder interviews. One health stakeholder strategy for gaining media coverage is precisely to anticipate the journalistic demand for sources that are naturally imbued with an aura of credibility and

neutrality. In other words, press releases are not only highly “preformulated” (Briggs 2011a, 223), i.e. compiled to resemble the genre and style of actual news reporting thus facilitating verbatim uptake, but they also provide contact information for additional sources in accordance with journalistic ideals of objectivity and neutrality. Again, in doing so, this highly ‘biomediatized’ strategy whereby health stakeholders have internalized specific media logics (Strömbäck 2008), possibly give rise to hidden, yet successful, agenda-setting efforts. The following quotes clearly demonstrate health stakeholders’ awareness of health journalists’ preferences for specific types of sources.

“For example, new innovations are always linked to a university or a white coat researcher, never to a pharmaceutical company... but in most cases, it was the pharmaceutical company that took the risk, that provided the funds, that believed in it in order to make innovation possible. The idea often originated at a university, but we took the risk.” (Pharmaceutical company, #11)

“We take good care of our press contacts. We systematically send embargoed press releases two days in advance, sometimes longer. We also guide them [i.e. journalists] towards possible interviewees [...] We know the press prefers someone in a white coat over someone with a tie (laughs)” (Government institution, #18)

Besides apparent industry influences flowing from manifestly corporate press releases, all editors considered the interpenetration of industry, state and (bio)medicine as problematic for discovering conflicts of interest. Identifying conflicts of interest is considered an essential verification strategy by the respondents, yet all editors expressed doubts concerning their own ability to do so. The following quote tellingly illustrates a sense of powerlessness towards expert (scientific) sources. The editors are greatly dissatisfied with the current situation in which they are increasingly forced to rely on expert scientific sources, while at the same time they doubt these expert sources’ preparedness to readily disclose conflicts of interest.

“Due to the entanglements between academia and the pharmaceutical sector, you as a journalist have no choice but to do a very thorough job. You may have checked trustworthy sources, but are still left with the feeling that, in the end, you do not know. We are not the scientists. Journalists collect information and try to separate the nonsense from the reliable stuff. In the case of scientific information, the only option you have is to rely on a number of scientific sources who will make that assessment for you.” (Editor-in-chief popular newspaper, #3)

Three editors were also concerned with the integrity of scientific press releases. They emphasize that researchers themselves are sometimes guilty of hailing every small new development as the next breakthrough, while important methodological details remain buried under eye-catching one-liners. As the following interview excerpt illustrates, journalistic trust in scientists' integrity is slowly starting to fade due to the latter's appropriation of media logics that hinge on sensationalism and exaggeration.

"One of the things I've recently heard was that scientists themselves are starting to embellish research findings." (Editor-in-chief popular newspaper, #3)

Scientists' public communication strategies were also a recurrent theme in the interviews with health stakeholders, especially those from government institutions and from organizations of scientific medical experts. As demonstrated by the quote below, the former recognize that the transformations in their own field pose substantial difficulties for health journalism. In addition to the difficulty to fully understand, grasp and adequately report the nuances of medical science, journalists now also have to dismantle scientists' 'biomediatized' practice of embellishing research results. As such, the responsibility for inaccuracies in health reporting shifts from the journalist to the researcher.

"They [i.e. scientists] need to raise funds so they'll always present a study slightly better than it actually is, or they want to shed a more favourable light on the hospital they work at... So everybody has reasons to garner positive media attention. And unfortunately, we have noticed that the problem is much bigger at the side of the scientists than it is at the side of the journalists." (Organization of scientific medical experts, #31)

Notwithstanding problems regarding health journalism's dependency on scientific expert sources, the editors still considered the latter as essential news sources because of their privileged expert knowledge on particular health topics. As illustrated by the quotes below, despite fading trust in the integrity of scientists' public communication strategies, expert sources are needed to explain complex issues in lay terms, to contextualize "breakthroughs", to provide story ideas or to aid in evaluating the credibility and trustworthiness of press releases.

"But [name journalist] has a very large network in academic circles. So she'll always check with them first. Is it credible or not? And then, we'll decide whether or not we'll cover it. So

[name journalist] will always have to do that check.” (Editor-in-chief quality newspaper, #2)

“Last week they came to me during a morning meeting with a piece from some British newspaper or something about a new therapy. Then I said: ‘Okay, but first you’ll contact a serious oncologist, I forgot his name... ehm, he’s from Ghent. In any case, I say to them, now you’re gonna give that oncologist a call and ask him whether he finds that therapy interesting or not. And if he doesn’t think it’s worthwhile, then we won’t even publish five lines about it.” (editor-in-chief popular newspaper, #4)

The two magazine editors even explicitly state that whenever they interview a professor, they have him or her proofread the article in order to avoid misinterpretations or falsehoods. This form of boundary-work exemplifies reverence towards the scientific community, despite editors’ previously mentioned concerns about scientists’ and doctors’ hunger for media attention and possible non-disclosure of conflicts of interest.

Respondent 1: “Ehm, if [name journalist] interviews a professor...

Respondent 2: [finishes sentence] “Yeah, we always have them proofread the article”. [...] “sometimes there are different interpretations, or you formulate it differently”

Respondent 1: “That way we are 100% sure.” (editor-in-chief and health journalist magazine, #5)

“The information we put in the magazine has to be 200% correct. So, no matter what, we always have an expert in the field proofread what we want to publish.” (editor-in-chief magazine, #6)

The practice of having “the expert” proofread the eventual article reflects a typical form of boundary-work because, in doing so, the editors clearly demarcate the realms over which each profession holds authority (or responsibility).

8.4.2 The Influence of the Hybrid Media System in the Co-production of Health News

As argued in the literature review, the health news production process is also influenced by the transformations of the hybrid media system. Spurred by technological innovation, media systems now

crucially include a continually expanding, bidirectional, digital component alongside the traditional unidirectional offline print and broadcast components. These transformations and the disintermediation of health communication provides an open invitation for anyone with Internet-access to contribute to the production of health knowledge. Consequently, respondents from both media and health professionals recognize that there is an increased need for reliable health news. Especially with the advent of social media, health information from uncredited sources is proliferous and circulates widely on the Internet, the respondents said.

“It is a fact that online you can find a lot of information about any kind of topic, also about cancer. There are enormous quantities of information on the Internet, but the question is whether what you’re reading is correct.” (Patient organization, #26)

This type of information or self-proclaimed news, often presented as “five-things-you-need-to-know-about”, may flow directly from the industry or from other sources with vested interests, and contributes to the online health information tangle. The quote above demonstrates health stakeholders’ concerns about the effects of the changed media environment on public access to health information. The health stakeholders in the sample consider the disintermediation of the production and distribution of health knowledges as a potentially dangerous evolution that provides fertile grounds for large-scale public misinformation. The quote (below) from one of the editors confirms the concern raised by the health stakeholders, but it also tellingly adds that news organizations are now facing new competitors.

“Our biggest competitor online is Facebook. I mean – and because health is a topic that interests many people – you see a lot of things circulating on Facebook. Also a lot of bogus things, like “five-things-you-can”. Ehm, there’s no check on these things, and I can imagine that some pharmaceutical companies have discovered that, without any intervention, they can feed the Facebook timeline and that these things lead their own life on Facebook, without ever disappearing.” (editor-in-chief popular newspaper, #3)

Nevertheless, nearly all health professionals in the sample still blamed media for seeking sensation at the expense of scientific accuracy in order to sell more copy. (The interview excerpt below is indicative of this accusing attitude.)

“Well, most media strategies are the ones where sorrow and misery get all the attention, but health prevention is not at all a sexy news subject. But yeah, it’s good that we know that this

is the way things are. I mean, if you know how the media operates, then you just have to act on that.” (Sickness fund, #22)

Even though this presumed media logic of sensationalism is not exclusively tied to new media, all respondents had the impression that the introduction of the Internet and especially the newly emerging ‘algorithmic’ social media logics greatly add to the problem of sensationalism. It seems that the health stakeholders projected this issue as a general problem since news inevitably flows through the entirety of the hybrid media system rather than being confined to only one format. However, as mentioned earlier, there is a certain level of irony to this attitude because the respondents from government institutions and organizations of scientific medical experts explicitly acknowledged that exaggeration and bias sometimes also arises within the biomedical community itself rather than with journalists.

However, despite this partly unjust accusation, newspaper editors in the sample did realize that in the chaotic transition from print to digital and in the concomitant search for viable online business models, they had succumbed to publishing sensational clickbait news stories (at the expense of their own reputation that revolves around depth, quality and reliability). Consequently, although, when asked explicitly, editors insisted that quality standards of their online and offline content were equal, implicitly a lower standard seemed to hold for the free online news. We did not find this in the interviews with editors from the magazines (probably due these magazine’s strong focus on print), but it was very prominent with editors from both quality and popular dailies.

“Online we are completely free, but probably that’s not going to stay that way. This implies that we’ll have to provide more quality, so that we can work towards a paywall model.” (editor-in-chief popular newspaper, #4)

“By now we have agreed on that point because online news has its disadvantages. It mostly works with young journalists. Online news is moving incredibly fast, so short press releases from news agencies and a whole bunch of other stakeholders go like hot cakes. Our digital health news has suffered from this the past few years, so you would get a lot of nonsense research in there.” (Editor-in-chief newspaper quality newspaper, #1)

These two quotes illustrate the distinction in quality that surfaces between legacy media’s online and print news. This is important because ultimately, despite the tendency to move towards paywall-models, most online news, especially that provided by popular titles, is still freely available (Arrese 2016; Benson 2017).

8.5 Discussion and Conclusion

By means of in-depth interviews with editors-in-chief of leading Belgian media outlets as well as with health professionals from the broad field of biomedicine who are often used as sources in health news (Atkin et al. 2008; Stroobant et al. 2018; Ostergren et al. 2015; Tong et al. 2008; van Trigt et al. 1994; Wallington et al. 2010), this paper sheds light on the medicine-media interface from the vantage points of the various professional communities that are essentially involved in the production of health news (Anderson, Petersen, and David, 2005; Briggs and Hallin, 2016; Hallin, Brandt, and Briggs 2013). The findings that we report here bear relevance on two distinct, yet related levels (Blumler, 2010). Firstly, the civic adequacy of health journalism in the contemporary hybrid media ecosystem, from a normative point of view, is questioned. The interpenetration of industry, state and government in the domain of health creates difficult circumstances for health journalists to find reliable sources and to make sense of the myriad of messages and opinions that are circulating ‘out there’ (RQ1). Secondly, struggles concerning journalism’s financial viability provides a broader context for interpreting the former (RQ2).

As a consequence of the inherent complexity of the biomedical world (Clarke et al. 2003) finding neutral sources in health journalists’ pursuit of objectivity is perceived as becoming increasingly hard. The strong technological and scientific nature of the field combined with a strong interpenetration of the state, the industry and the academic scientific world creates a growing necessity to rely on neutral and independent expert news sources (Albæk 2011), while at the same this makes it more difficult for journalists to find the right expert and to discover conflicts of interest. This finding casts doubt on journalism’s ability to hold the “medical industrial complex” accountable (Clarke et al. 2003, 166). That biomedical actors have, along the way, started to internalize certain aspects of media logic into their own practices, thus proving that biomediatization is not just a thought experiment, contributes to the issue. The interviews with the biomedical professionals indicated – albeit to varying degrees – that they adapt their own practices to the logics of media. For instance, in deciding about which issues to communicate and how these issues should subsequently be presented. Many health stakeholders tried to anticipate the needs of journalists. Sometimes, even decisions regarding their own internal organization are made in function of media logics. Furthermore, the sheer fact that most organizations have a PR-department and that they invest in the production of press releases, but also more recently that nearly each organization has its own Twitter-account, Facebook-page or website already proves that biomediatization is real. Strömbäck (2008) identifies this as the final phase in the mediatization process (he calls it “pre-mediatization”). In this final stage, biomedical actors have internalized media logics and (unconsciously) integrate them in their own professional routines.

A second validation for biomediatization is the fact that in the answers of the respondents the linear-reflectionist translation metaphor was still very visible (cf. Anderson, Petersen, and David 2005; Briggs and Hallin 2016; Hallin and Briggs 2015). As such, while gradually acknowledging the

proximity between the fields of health and media, all respondents engaged in boundary-work by constructing these domains as separate. Importantly, biomediatization is not only characterized by the imbrication or hybridization of different professional logics, but also by boundary-work (Briggs and Hallin 2016, 207).

This is important because if biomediatization were to focus exclusively on the porousness of boundaries between health and medicine (i.e. on “co-production”), this could wrongfully suggest a corruption of the fields in question (Briggs and Hallin 2016; Strömbäck 2008). We are not saying that the context in which health news is produced today – or better yet, co-produced – is “worse” than it was say thirty years ago. Instead, we merely argue that health and medicine are intricately connected. Normative questions must be asked but they do not directly stem from biomediatization theory nor from the literature on hybrid media systems. In other words, a high degree of (bio)mediatization does not automatically entail a loss of quality. More than once during the interviews it became apparent that the hybridization of medicine and media is contested through continuous efforts of boundary-work. Biomediatization thus provides a powerful analytical framework for understanding the relations and outcomes of seemingly contradictory processes.

Furthermore, by adopting a biomediatization framework we were able to add to previous investigations of media-source relations in health and science reporting (e.g. Amend and Secko 2012; Forsyth et al. 2012), the finding that reporters’ assumed reverence for scientific sources seems to be crumbling. Media professionals are increasingly aware of scientists attempts to gain media coverage in an effort to secure research funding (Anderson, Petersen, and David 2005; Fenton 2014; Sumner et al. 2016). As such, newsrooms consider it their own responsibility (rather than the scientists’), to lay bare possible conflicts of interest, yet are increasingly worried that attempts to do so might fail. The distrust towards traditional medical authority ties in with modern trends projecting an evolution from paternalistic, biomedical authority models of healthcare towards a neo-liberal, market-driven, patient-consumer healthcare model (Briggs and Hallin 2016). According to Seale (2002, 166-183), who devotes a whole chapter to this issue, mass media also play an important part in this process of patient empowerment.

In accordance with previous research, other strategies to preserve objectivity and neutrality of reporting range from downright rejection of information subsidies from corporate sources, over sceptical and limited use and uptake, to using corporate sources without explicitly mentioning that this was the case (cf. Hinnant, Len-Riós, and Young 2013; Morrell et al. 2015; Tanner, Friedman, and Zheng 2015; van Trigt et al. 1994; Wallington et al. 2010). While our evidence is explorative and possibly reflective of socially desirable answers, this attitude can be considered as another form of boundary-work. Irrespective of whether corporate press releases are used or not, the fact that, when asked about this, respondents discursively distance themselves from those who provide such information subsidies, embodies practices of boundary-work.

Our results, furthermore, foreground the hybridization of the media system within the biomediatization process. The impact of or degree of biomediatization appears to be, at least partly, determined or co-determined by the specific media logics associated with different types of news. Consequently, it seems that the more general framework of mediatization requires additions from journalism-specific theories. More specifically, the struggle to find profitable digital business models and the fierce online competition due to an overcrowded and hybrid media environment in which various (un)credited sources can generate a wealth of publicly available information (Chadwick 2013; Clarke et al. 2003; Lee et al. 2014), considerably impacts the overall processes of biomediatization (cf. Veloudaki et al. 2014).

During the interviews, this became apparent from two angles. Firstly, both health and media professionals are concerned with the resources that are available to newsrooms for employing specialized health reporters. Secondly, legacy media experience direct competition for attention from non-journalistic stakeholders that are involved in the production and circulation of health information in the current disintermediated hybrid media system. Consequently, news stemming from established legacy media must compete with all kinds of other information such as advertising, biased and unbalanced misinformation, or even disinformation that deliberately aims to mislead audiences (Albright 2017; Hazard 2017). Associated with legacy media's transition to a digital environment, this study identifies a systematic difference of quality between free online news and news that sits behind a paywall (or that is bought in its physical printed form).

In this respect, Benson (2017) alerts to the dangers of a potential information gap between people with higher and lower socio-economic status. Assuming that more affluent layers of the population (who are overall already more highly educated than lower-middle class worker families) will be more likely to pay for news, Benson (2017) fears that a difference in quality between gratis news and news which has to be paid for might generate a knowledge gap (cf. Hamilton and Morgan 2018). In the context of health, this could lead to a further increase of health inequalities that already exists between people of higher and lower socio-economic status (Lin, Yung, McCloud and Viswanath 2014; Ramirez, Estrada, and Ruiz 2017).

Future investigations of (health) news within broader frameworks of (bio)mediatization could benefit from analytically differentiating between media as cultural/institutional entities and media as technologies (Bolin 2014). The latter perspective is now becoming increasingly dominant within journalism studies in the work of scholars who embrace the materiality of journalism as well as within research on mediatization (Adolf, 2017; Anderson and De Maeyer, 2015; Boczkowski 2015; Bolin, 2014; Jansson 2014; Lievrouw 2014). While the results presented here are preliminary, our findings do seem to suggest that technologies influence processes of biomediatization. Yet further research in other geographic contexts is needed to explore more deeply the underlying drivers of the various processes of biomediatization identified in this article.

NOTES

1. One of the magazine interviews was a double interview. Upon request of the editor-in-chief of one magazine, the interviewee was accompanied by one of their senior health reporters due to language issues. Belgium is a largely bilingual French/Dutch country. This research focuses on the Dutch speaking part of Belgium (Flanders) but the magazine in question also publishes a French version (which is not a literal translation of the Dutch version). Due to the fact that the editor-in-chief's native language was French, she requested the support of a familiar native Dutch-speaker.
2. Belgium has three official languages: Dutch, French as well as a small minority of German-speakers. As a consequence, Belgium does not have 'national' media outlets. Since this study is situated in Flanders, the Dutch-speaking region of Belgium, our focus is on the Flemish media market.
3. Complementary to the analysis presented here, the authors are working on a paper that explores how processes of biomediatization vary for the different stakeholders.
4. For more information on the coding strategy, coding schemes or Nvivo data files, please contact the first author.

GENERAL CONCLUSIONS

9 GENERAL CONCLUSIONS: Reassembling health news

9.1 Reassembling the co-production of health news

The title of this dissertation is “*Reassembling health news*”. This was not chosen randomly but rather it reflects this dissertation’s empirical and theoretical approach for understanding how health news comes into existence and for how it acts upon other aspects of society.

Throughout this dissertation, the sourcing of health news – an activity which is considered to be at the heart of journalism practice (Berkowitz, 2009; Broersma & Graham, 2012; Manning, 2001; McNair, 1998) – is interpreted as an intricate process of co-production between networks of news sources, journalists, audiences and the technological communicative infrastructure through which materializations of health news circulate (Boczkowski & Lievrouw, 2008; Briggs & Hallin, 2016; Lievrouw, 2014). For health news, this process of co-production takes place at the cusp of the interface between the spheres of media and health. In fact, it is precisely this process of co-production that creates such a hybrid health/media interface in the first place (cf. point 3.2.1). As argued in Briggs and Hallin’s biomediatization thesis, the abundance of health news in contemporary hybrid media systems provides scholarship with a rich playground for gauging how deep exactly the interpenetration of the fields of health and media goes (Briggs & Hallin, 2016). In order to understand health news as a case of biomediatized co-production, scholarship first needs to identify relevant actors (which can also be non-human) and, subsequently, it needs to examine the nature of the associations through which the various actors are deployed in the networks of co-production (Boczkowski & Lievrouw, 2008; Domingo et al., 2015). The main objective of this dissertation, therefore, consists of tracing the sources and, subsequently, of understanding how these sources are assembled in hybrid health/media constellations through co-production. In other words, this dissertation reassembles health news by examining how discrete sources are pieced together to form hybrid assemblies of health news (Latour, 2005).

More specifically, this dissertation has traced and quantified the sources of health news, and it has examined how journalists subsequently combine the sometimes already highly biomediatized and preformulated discourses of these sources into actual news stories by scrutinizing news content (chapter 5) and by mapping the hypertextual connections of the online health news landscape (chapters 6 and 7). In chapter 8, the outcome of the health news sourcing process as manifested in the news content is supplemented by an examination of the motivations, concerns and hesitations that drive journalists and news sources to act in particular ways (and not others). This last, qualitative, step is necessary to understand how media professionals and health stakeholders assess their own professional communicative routines in relation to the production of health news, as well as how they

perceive and react to activities from other actors who are also actively trying to shape public discourses about health.

However, without any further theoretical additions, any account that intends to unravel the intricacies of health news by mapping networks of co-production would inevitably be highly dynamic, ephemeral, dispersed and even unpredictable. If this were true, then the proposed argument to analyse health news in terms of co-production would be theoretically useless. After all, what could be the value of tracing the underlying co-production processes of discrete instantiations of health news, if the underlying networks can endlessly unfold in thousands of different, hybrid, but nevertheless somehow related manifestations? In order to bring stability in this chaotic dynamicity of networks, boundary-work (or “purification”) is invoked (Briggs & Hallin, 2016; Gieryn, 1983; Latour, 1991/1993, p. 10) (e.g. point 3.2.2). Similar to co-production, the process of boundary-work is not a mere theoretical construct (chapter 8). On the contrary, boundary-work is observable in everyday practice and therefore thus real rather than theoretical. Additionally, biocommunicability operates as an overarching principle that governs both boundary-work and co-production (cf. point 3.3). This implies that the theoretically unlimited number of ways in which the co-production of health news can occur is, nevertheless, constrained by the larger blueprints of biocommunicability which roughly project three ideological cartographies of how knowledge about health is produced, distributed and consumed (Briggs, 2011b). Although these cartographies or models can occur in many – sometimes hybrid – manifestations, biocommunicability still projects only a limited number of possible constellations.

A second stabilizing factor is the presence of objects and technologies in networks of co-production (Latour, 2005). Technologies are stabilizing because, contrary to face-to-face interactions, they materialize virtual or short-lived linkages among entities in a network (Latour, 2011). As repeatedly demonstrated by the material turn in journalism, a focus on technologies and more broadly on the objects of journalism can also contribute to the collective scholarly understanding of how change in journalism is effectuated (Boczkowski & Lievrouw, 2014; De Maeyer & Le Cam, 2015; Domingo, 2008, 2015). Objects of journalism also shape the news. The material turn therefore concludes that examining these objects as socially embedded entities will enrich, not only our understanding of those objects, but also of the social context in which they function (Anderson & De Maeyer, 2015; Latour, 2005). Hyperlinks constitute an excellent example of a meaningful object of journalism because they materialize offline social ties in a relatively permanent way. That is, besides reifying economic ties (cf. point 2.3.3.2.2), hyperlinks also resonate with long-standing journalistic principles of source transparency, news diversity and, more recently, also with interactivity, since the insertion of hyperlinks may be spurred by the journalistic intention to accommodate real or imagined needs of the audience (De Maeyer, 2012; De Maeyer & Holton, 2016; Ryfe et al., 2016; Steensen, 2011) (cf. point 2.3.3.2.1). That hyperlinks materialize offline (social) relations is exactly why seemingly inconspicuous, often taken-for-granted digital objects such as hyperlinks are meaningful objects of study for the social sciences, journalism studies included.

That health news is indeed governed by processes of co-production, boundary-work and biocommunicability becomes evident in the empirical part of this dissertation. Especially salient is the sheer diversity of news sources that get a voice in health news (cf. Table 4-2, Table 6-3, and Table 7-6; Figure 5-2). This observation refutes the persistent idea that health news is a linear translation of complex biomedical information from the hierarchically superior world of biomedicine to a popular journalistic context simply because a lot more different kinds of sources appear in health news than just biomedical sources (cf. Clarke et al., 2003; Hallin & Briggs, 2015) (cf. point 3.1.2.2). However, in accordance with previous research on the sourcing of health news within the field of journalism studies (e.g. Anderson et al., 2005; De Dobbelaer et al., 2018; Hallin et al. 2013; Remus, 2014; Verhoeven, 2008) as well as within medical science and the applied field of public health communication (e.g. Atkin et al., 2008; Clarke, 2006; Hilton & Hunt, 2011; Husemann & Fisher, 2015; Ostergren et al., 2015; Tong et al., 2008; van Trigt et al., 1994; Wallington et al., 2010), the sources of health news in all media types under scrutiny are still largely dominated by biomedical experts (cf. Table 5-2). This situation reflects the cultural dominance of biomedicine as projected in the biocommunicable model of biomedical authority which casts biomedical experts as the legitimate producers of health knowledge and therefore also as legitimate sources of health news (Briggs & Hallin, 2016; Conrad, 1999; Dutta, 2008; Holland, 2018). At the same time, this finding also provides evidence for the sociological “dominance paradigm” in the context of health because on account of their expert knowledge (i.e. their symbolical capital), biomedical sources gain privileged news access (Cottle, 2003/2006; McNair, 1998, p. 25) (cf. point 2.1.3.2 and chapter 5).

Nevertheless, despite the habitual occurrence of biomedical experts as news sources and the overwhelming number of hyperlinks that refer to highly authoritative biomedical institutions, the interviews in chapter eight revealed that trust in these experts is fading. The rise of patient-consumer and public sphere biocommunicability is what explains health reporters’ choices for other sources which are not typically considered as biomedical elites such as patients, patient organizations, politicians, unions, insurance companies, etc. (e.g. Hallin et al., 2013; Hodgetts et al., 2007; Holland, 2018). The interviewed editors-in-chief were concerned that biomedical elites, particularly scientists, increasingly engage in practices which are not traditionally associated with their own profession but with that of news making. For instance, when scientists embellish research results or when they exaggerate certain claims in order to raise the odds of getting covered by the popular press (Schat et al., 2018; Sumner et al., 2016; Woloshin et al., 2009), these practices are perceived as pollutants that make the practice of science less “pure” (cf. Nelkin, 1996). If certain media logics become built-in parts of biomedicine, then the interpenetration or “hybridization” of health and media as enveloped in the co-production of health news is at its highest (Briggs & Hallin, 2016; Latour, 1991/1993; Strömbäck, 2008). Thus, rather than *adapting* to media logics, scientists are *adopting* and *internalizing* them until the media logic almost unconsciously becomes an inherent part of the practices of certain

health stakeholders. This far-reaching stage of the mediatization process is alternatively referred to as “deep mediatization” (as opposed to “weak mediatization”) (Couldry & Hepp, 2017, pp. 28-33) or as “pre-mediatization” (Strömbäck, 2008). While this is also true for other health stakeholders, most notably the industry but also civil society and patient organizations, the biomediatization of the practices of science are highlighted because, while in the past scientists were primarily seen as neutral experts, they are now increasingly perceived as advocates, not only by media professionals but also by other stakeholders within the healthcare field (Deacon & Golding, 1994) (cf. chapter 8). For instance, health stakeholders from expert government institutions acknowledged that exaggeration is certainly not the exclusive ‘fault’ of journalism. However, exaggeration in press releases does not automatically imply a heightened chance of getting covered, even though it is commonly assumed that this would be the case (Schat et al., 2018; Sumner et al., 2016) (cf. point 3.1.1).

In addition to the growing distrust towards institutional (bio)medicine as a consequence of the appropriation of media logics by biomedical professionals, the impression that the industry has expanded into the supposedly ‘neutral’ and ‘well-intending’ worlds of scientific research³⁰ and government policy-making further exacerbates the already precarious conditions for health news sourcing. The editors-in-chief from chapter eight were well aware that close relations exist between the industry, governments and the scientific community (cf. point 3.1.2.2), but they were not always very confident that they would eventually be able to see through this tangle of hybrid relationships to detect potential conflicts of interest. Similarly, previous research has indicated that health journalists, especially those adopting a pronounced watchdog role (e.g. Hinnant et al., 2016), think it is absolutely paramount to be critical of sources’ hidden interests (Amend & Secko, 2012; Morell et al., 2015). As a reactive boundary-work counter-practice, the editors in chapter eight (as well as respondents in other studies) shift the responsibility of detecting commercial interests to the public. Although not explicitly analysed in terms of co-production and boundary-work, Forsyth and colleagues (2012, p. 138) report that health reporters in their sample also “considered the public able to discern commercial interests and decide whether products and services were appropriate for specific health circumstances”.

That boundary-work is at play in the co-production of health news is also evident in the industry’s notable absence from the quantitative chapters. Yet, this does not mean that the industry is not (or only marginally) involved in the co-production of health news. Despite journalists’ attempts to remain in control (i.e. to lead the tango) – for instance, by refusing to use industry information subsidies or simply by not mentioning that such PR-materials were used – the industry, nevertheless, seems to occupy a central position in the co-production of health news. The comparative analysis in chapter five

³⁰ Note, however, that the persistent idea that industry funded research is more biased or less transparent about funding and conflicts of interest than non-industry funded research is increasingly refuted (DeVito, French & Goldacre, 2018; Janiaud, Cristea & Ioannidis, 2018).

indicates that magazine health news is most vulnerable in this respect (see also De Dobbelaer et al., 2017). But also in unmediated online contexts, the presence of the industry is obvious (chapter 7). In addition, the respondents from pharmaceutical companies seemed confident that their information subsidies will lead to coverage if they make the deal more attractive by throwing in something extra. The next quote from the CEO of a pharmaceutical company (who was also a respondent in chapter 8) unambiguously reveals the confident, even arrogant, attitude towards strategies for gaining news access:

Suppose that we put out a press release tomorrow about saffron pills, nobody is going to write about it. Nobody. Nobody, I guarantee you. So that's... I don't always understand it myself, but the press is the press. Now, if we were to invite them at a castle and all, then the chances of getting picked up would be higher. (Laughter)

However, despite some obvious journalistic boundary-work to fence off 'insidious' commercial influences, the overall negative attitude towards the pharmaceutical sector is remarkable because the latter are a powerful, highly authoritative and influential stakeholder in the Belgian social health insurance system. Three arguments will be put forth to explain why more nuanced media portrayals of the pharmaceutical sector may be warranted. Firstly, the pharmaceutical sector is a key player in the development, production and distribution of pharmaceuticals – whether one likes this or not. Secondly, the financial added value, directly and indirectly, of the presence of the pharmaceutical industry in Belgium is large. It is one of the core industries that make Belgium's economy prosperous (pharma.be, 2017). Dealing with the pharmaceutical sector is a double-edged sword. On the one hand, unethical marketing practices, lack of transparency and artificially high drug prices must be denounced and regulated. On the other hand, if local governments impose strict regulations or if they openly and repeatedly publicly condemn the sector, these multinationals threaten to move their local activities elsewhere (e.g. Cats, 2017, November 21). For the sake of public health, such a situation is to be avoided since economic prosperity is also a determinant of health (Benach et al., 2014). Thirdly, even though the wounds in pharmaceutical companies' reputations are mostly self-inflicted (Goldacre, 2012; Van den Bogaert et al., 2018), strong "bad pharma" framings in the popular press may have perfidious side-effects on the public perception of the pharmaceutical sector and their products (Nielsen & Nordestgaard, 2016).

While this is – admittedly – a very normative argument, it is worth mentioning that one-sidedly negative coverage of the pharmaceutical sector and how it dominates the healthcare system in an effort to make profit might cause already vulnerable groups to completely abandon traditional medicine in favour of non-evidence-based, sometimes harmless (but not always), alternative healing methods. Biocommunicability and the performativity of language further emphasize the importance of mainstream discourses of health news, not merely as reflective of a certain situation but as integral components that agentively co-shape that particular situation (Briggs, 2011b). Although difficult to

prove, a fair number of studies have shown that at least there is a correlation between health coverage and risk perception (Stryker et al., 2008), therapy adherence (Bezin et al., 2016; Bonaccio et al., 2012; Nielsen & Nordestgaard, 2016), and consumption of medical services (Evans et al., 2014). The following (tragic) Canadian example proves that the stakes of biocommunicability are high. In 2013, seven-year-old Ryan dies from a simple infection that could have been treated with antibiotics because his mother, who is now charged for the death of her son, did not believe in the effectiveness of traditional medicine. To keep her son healthy, the mother gave him dandelion tea and treated him with other herbal products such as oregano oil (e.g. Grant & Anderson, 2017, January 23). The mother deeply regrets her negligence³¹ but the damage is done. Alas, these kinds of dramatic accidents also occur elsewhere, for instance, in Belgium (e.g. Foubert, 2017, May 16). While no simple causal relation between health coverage and the aforementioned tragic occurrence can be proven (or possibly does not exist), the impact of implicit ideological cartographies that stipulate how publics should deal with health information should not be underestimated. In this case, the break away from paternalistic models of biomedical authority has taken a turn for the worse.

Furthermore, since the Internet is becoming an increasingly important source for health information, it is important to consider that through hypertextual embedding, critical investigative reporting about the pharmaceutical sector by legitimate news organizations can be recontextualized in environments of misinformation and disinformation (Sundar & Nass, 2001). The good reputation of the media brand originally producing the story is then used to fuel anti-pharma debates while at the same time giving these debates legitimacy. This is not to say that critical reporting about the pharmaceutical sector should be called to a halt. Quite the contrary! Nevertheless, nuance and cautious, ‘non-clickbait’, headlines seem warranted for news about health. Yet, as apparent from the interviews in chapter eight, this is easier said than done.

Contrary to previous research into health news sourcing practices (e.g. Hallin et al., 2013; Hilton & Hunt, 2011; Ostergren et al., 2015; Tong et al., 2008; van Trigt et al., 1994; Verhoeven, 2008), this dissertation also puts forth comparisons of sourcing patterns across media types as an explicit focus. Since the sourcing process is conceived as embedded within socio-technical assemblages of co-production, the outcome of the sourcing process is assumed to be influenced, not only by relations between human actors but also by the relations between humans and technologies (or things). Thus, the question of “who leads the dance” (i.e. sources or journalist) possibly requires a different answer for different media types. Note, however, that this very fundamental question of traditional sourcing research produces a theoretical mismatch when news sourcing is conceptualized as a multifold

³¹ The Canadian news website of *CBC News* includes the mother’s 911 call. Yet, at the moment of calling, Ryan has already deceased. Warning: listening to this gruesome ten minute long conversation might be disturbing for some. <https://www.cbc.ca/news/canada/calgary/tamara-lovett-failing-provide-necessaries-trial-ryan-meningitis-strep-1.3871034>

networked practice that involves more than just the somewhat problematic source-journalist opposition. Online health news and women's magazines are more prone to industry influences than newspaper, television or radio news. Of course, this does not mean that other contexts are immune to strong sources³². In line with a theoretical materialist perspective on health news (cf. point 2.3), it is argued that objects of journalism also shape the co-production of health news. In other words, that health news 'is what it is' is not exclusively dependent on the characteristics, interpretations and intentions of human actors, rather co-production is contingent upon the nature of the associations between both human and non-human, technological, entities.

In this respect, one of the most striking differences is the prominence of lay sources in the sourcing routines of television journalists, but also – albeit to a lesser extent – in magazines and popular newspapers (cf. Figure 5-2). The visual nature of television news influences how journalists treat sources and present news stories. Firstly, contrary to other news formats, television allows for the inclusion of a specific type of lay source, i.e. vox pops, which are cheap and easy to produce. Contrary to what one might expect, Beckers and colleagues (2016), who compare the occurrence of vox pops over a period of ten years between the Flemish public broadcaster (*één*) and the commercial broadcaster (*VTM*), finds only marginal differences between the two. Hence, vox pops, which are typical only of television news regardless of whether the station is publicly or commercially funded, may contribute to the finding that lay sources occupy a prominent position in the overall sources of health news. Secondly, the drive to reach a broad audience and to subsequently keep the eyes locked to the screen by humanizing health news with endearing patient stories also explains the high occurrence of lay sources on television (Hinnant, Len-Riós & Young, 2013; Tanner et al., 2015; Verhoeven, 2008). However, this reasoning also applies to popular newspapers and magazines (De Dobbelaer et al., 2017; Gans, 2009). Consequently, sourcing practices are not exclusively related to the medium (as would be the case in technologically reductionist accounts) but also to health journalists' audience perceptions (Hinnant, Len-Riós & Oh, 2012). Additionally, besides technical or organizational factors, individual characteristics of reporters may also influence sourcing routines (e.g. Wallington et al., 2010). Thirdly, evidence of co-production with respect to the occurrence of lay sources is found in the fact that press releases from patient organizations or other health stakeholders such as the pharmaceutical industry often act as gateways to patient stories for journalists who must respect patients' privacy (Hinnant et al., 2013; Van den Bogaert, Stroobant & Bracke, 2018). From a

³² For instance, on the 14th of May 2018, quality newspaper *De Standaard* publishes an opinion piece which argued that the exceedingly high prices for medicines are morally justified (Gijssels, 2018, May 14). The piece was written by someone who presented himself as working for an international patient organization. This is also what the introductory editorial note preceding the actual opinion stated. However, it seemed that *De Standaard* was fooled by a smart PR-move because the author of the opinion – who runs his own PR-company – had close ties with the pharmaceutical industry. The next day, presumably after having received many comments and emails from discontented readers, the somewhat misleading introductory text was altered so that it no longer linked the author to a patient advocacy organization. The same week, another opinion piece was published that countered all the clearly-industry driven arguments from the original opinion piece (Rosier, 2018, May 15).

normative perspective, this is also relevant for understanding why patient stories are not always reflective of the ‘real’ situation. In other words, that reporters must respect the privacy of patients is a possible answer to the common heard criticism that patient stories do not adequately reflect epidemiological statistics (Hinnant et al., 2013).

Finally, as sketched out in the embedded sequential explanatory component in the quantitative part of this dissertation’s mixed methods research design (cf. Figure 4-2), considerable attention centred on explorations of different types of online health news (cf. chapters 6 and 7). This is not without reason. After all, the literature review concluded that the digitalization of news greatly challenged both journalism theory and practice.

A fundamental contribution of this dissertation in the realm of online health news is that it draws attention to the centrality of search engines (Lee et al., 2014; Feuz, 2014; Newman et al., 2016; Ørmen, 2016; Powell et al., 2011). Audiences increasingly access news about health indirectly via referrals on SERPs (Barzilai-Nahon, 2008; Bozdog, 2013; Bro & Walberg, 2015; Clarke et al., 2003; Eysenbach, 2008; Heinderyckx, 2015; Pearson & Kosicki, 2016). While examining the role of search engines poses a series of new – partly unconquered – methodological challenges, journalism scholarship must engage with this difficult task because search engines are central entities in the networked co-production of (health) news. Drawing on an environmental scan of the health news landscape, chapter seven reveals that websites containing disinformation and misinformation are well represented on SERPs in the context of health news. This is problematic because websites that contain deliberately misleading information about health (i.e. disinformation) as well as websites that contain biased information such as industry funded websites or conspiracy websites (i.e. misinformation) often appropriate the look, feel and style of genuinely journalistic enterprises (Tandoc et al., 2017; Wardle, 2017). Hypothetically, if someone were interested in the health consequences of drinking coffee, it would not be unlikely that this person simply enters the full question: “Is coffee healthy?” in *Google’s* search box. Subsequently, the results presented on the SERPs are ‘deep links’ that bypass the homepage of the website on which the name of the media brand or organization is often clearly stated. It is here that the dangers of misinformation are right around the corner. While this is not a journalistic problem *per se* (because this content is not produced by journalists), the spread of misinformation and disinformation does cause problems for journalists because both information and dis-/mis-information circulate within the same hybrid mediascape (cf. Stroobant, 2017, June 14). This finding further illustrates the merit of adopting a material perspective that departs from an open, affirmatively delineated, definition of online health news. This dissertation would not be able to conclude that online health news is not always produced by journalists, if the analysis had been grounded in a negatively delineated, strictly functional definition of online health news (as produced by journalists).

9.2 Suggestions for further research

A first important venue for further research is the realm of online health news. Not in the least because it begs the question of what exactly constitutes online health news. News (about health) is increasingly produced without the intermediation of a journalist-gatekeeper (Barzilai-Nahon, 2008; Clarke et al., 2003; Eysenbach, 2008; Pearson & Kosicki, 2016). As a consequence, all sorts and conditions of health stakeholders directly provide information about health. Not seldom this information is cloaked in a journalistic style of writing so that it becomes similar to *genuine* news thus rendering the information more credible in the eyes of the audience. Importantly, this audience includes journalists. The Internet, and search engines in particular, are becoming increasingly important sourcing channels (e.g. Lecheler & Kruikemeier, 2016). Yet, search engines do not provide a neutral, open, window on “the Internet”. First, search engines only capture those parts of “the Internet” which are indexed by the search engines’ crawler (or spider) (cf. *Google*, “How search works”, n.d.³³). Thus, although ‘Big Tech’ may have a more panoramic view on the variety of available online resources than do individual surfers, it would be wrong to assume that any online resource can be found by using search engines. Secondly, the figurative window provided by search engines is made of stained glass that somewhat distorts the underlying reality. Search engines transform the underlying, flat, hypertextual networks of the Internet into a hierarchically ordered space that is governed by algorithms. The combination of the findings that the online health information space is occupied by a mosaic of information providers that greatly vary in terms of trustworthiness, and the fact that – despite increased use of search engines for finding sources – the editors-in-chief mentioned that they found it difficult to assess the trustworthiness of health information, especially online, warrants further research on (health) journalists online sourcing routines and the online health news landscape in general. Questions such as: “To what extent do journalists rely on search engines?”, “Which search strategies are used (i.e. which words/word pairs/sentences/questions are typed in the search box)?”, “What effect does personalization of search results have on individual journalists sourcing routines?” remain underexplored in the area news sourcing research (Ørmen, 2016).

A second important venue for further research are source strategies for gaining news access (cf. point 2.1.3.2.1). Especially those strategies that go unnoticed or those which are not even considered as being source strategies are of interest. For instance, the organizational strategies of sickness funds, (i.e. the Belgian social health insurers who are responsible for reimbursement of basic medical care and the payment of disability fees) are highly biomediatized. That is to say, in the decision to foreground a particular issue in sickness funds’ public health campaigns, they also take into account the chance that this particular topic will be of interest to an audience of journalists (Van den Bogaert,

³³ Search engine giant, *Google*, provides an explanatory *YouTube*-video (*YouTube* is also owned by *Google*) on how search works. It can be viewed here: <https://www.google.com/search/howsearchworks/crawling-indexing/>

Stroobant & Bracke, 2018). In other words, rather than placing public health on the highest rank, the logics of the healthcare field are overridden by the logics of media. Sickness funds are a particularly interesting, yet barely researched news source in this respect. They are interesting because, due to their prominent and central position in the Belgian healthcare system, sickness funds can exert considerable influence on public definitions of health and illness. By orders of the government (which also, albeit indirectly through the RIZIV-fund, provides financial resources for sickness funds' operating costs), one of the organizational objectives of sickness funds is health promotion. However, if sickness funds' definition of health is tailored to accommodate the logics of media (rather than the logics of public health), then this raises serious (political) questions about the status of sickness funds in the Belgian social health insurance system. This is noteworthy because sickness funds, on account of their key position in health policy, are commonly put on a par with biomedical authorities in terms of sourcing. Put differently, since sickness funds are perceived as highly respected expert sources, it is sometimes neglected that sickness funds also have a commercial agenda because, besides the obligatory health insurance, sickness funds also offer private insurances. These findings raise the question of what influence the communicative efforts of sickness funds have on the news and on public perceptions of health. An investigation of "*Krankenkassen*" – which are similar to sickness funds – in Germany concludes that no less than 86% of press releases sent out by a regional German sickness fund are picked up (often literally) by regional newspapers³⁴ (Reifegerste, Oelschlägel & Schumacher, 2014, p. 168). This seems to confirm the reverence for sickness funds as biomedical authorities. Hence, what impact do Belgian sickness funds have on mainstream discourses of health? And more importantly, if the sickness funds' definition of health is highly biomediatized, how does this impact their role as defenders of the patient?

9.3 Reassembling journalism theory: A fruitful dialogue between different academic disciplines?

Both journalism studies in general as well as the more specific literatures on news sourcing lean towards the sociology of journalism and mostly focus on political reporting. Traditional concepts such as 'gatekeeping', 'news access', 'public sphere', 'source diversity', 'balance', 'information subsidy' and 'pseudo-event' were evaluated critically and, if necessary, reviewed (e.g. 'balanced' reporting of scientific consensus or the relation between pseudo-events and disease awareness campaigns) to accommodate for the specificities of health. But that is not all. Rather than rejecting – that would be

³⁴ Regional newspapers were investigated because, contrary to the Belgian context, German citizens must join the sickness fund that is assigned to them based on where they live. In Belgium, every citizen is obliged to join a sickness fund but the choice is free. The high uptake of press releases from the '*Krankenkassen*' can thus possibly also be explained by the fact that regional newspapers often have less resources than larger national newspapers.

absolutely ludicrous – or ‘rethinking’ these traditional concepts, they are discussed in tandem with concepts from health sociology [i.e. “medicalization” (Conrad, 2005) and “(bio)medicalization” (Clarke et al. 2003)], STS [i.e. “boundary-work” (Gieryn, 1983; Jasanoff, 2004) and “co-production” (Latour, 1991/1993)] and medical anthropology [i.e. ‘biocommunicability’ (Briggs, 2011b)]. In order to keep such an ambitious project feasible, this dissertation follows Briggs and Hallin’s suggestion to integrate these different literatures within a framework of *biomediatization* (Briggs & Hallin, 2016).

Most importantly, adopting the presuppositions of materiality bridges the gap between digital journalism studies and the overarching discipline of journalism studies (in general) that is not explicitly concerned with the digitization of journalism. Today, however, not just on a theoretical level but also on an empirical-practical level, it is difficult to imagine news that is produced without the use of any digital technology (Broersma, 2018). To understand why exactly a material perspective can bridge this gap, it is necessary to unambiguously stress that “materiality” should not be understood as relating to inanimate “matter” as in the classical *Cartesian* mind-matter opposition. Instead, materiality as employed in the new materialism paradigm proposes an understanding of the world in which no *a priori* dualism between mind and matter exists because mind is matter (Dolphijn & van der Tuin, 2012; Sencindiver, 2017). Everything is matter. Even discourses, which constructivist paradigms interpret as social constructs that operate in a detached ontological zone, are material because they are performative. Hence, similar to constructivist paradigms, a material take on health news assumes that scientific facts and biomedical objects/subjects are socially embedded and are therefore also shaped by that context. Nevertheless, it differs from constructivism in assigning an agentive ontological status to such linguistic constructs³⁵. Although they are not tangible, discourses as well as the meanings engendered in these discourses are performative in the real world.

Does disambiguating the term “materiality” suffice to justify that a material perspective on journalism can bridge the gap between various components of journalism studies? Or should a different question first be answered? The answer to the last question is yes. By now it should be clear that within a material perspective no *a priori* oppositions between two negatively related terms exist. Therefore, the metaphorical use of “bridging the gap” is incorrect because only dualist perspectives (such as constructivism) would acknowledge that there is a gap to be bridged in the first place. The academic discipline of journalism studies will only advance slowly (or not at all if one is really pessimistic) if it conceives its object of study in terms of problematic binaries (cf. Witschge et al., 2018). In this case the two ends of the binary of journalism studies are ‘traditional’ and ‘digital’ or ‘old’ and ‘new’. Instead, journalism could be more productively interpreted as consisting of (and as always having consisted of) two simultaneous processes, i.e. co-production and boundary-work. This reorientation could provide a productive means forward to integrate digital journalism studies centrally

³⁵ Briggs (2011a, p. 460) refers to his process as “linguistification”.

within the field of journalism studies and to take assumptions of materiality into other more traditional domains of journalism studies so that the materiality of journalism ceases to be associated exclusively with new digital technologies.

Due to this dissertation's close affinity with concepts from medical anthropology and STS, it has rediscovered the important stabilizing process of boundary-work. Boundary-work is a useful concept in journalism studies. Various prominent journalism scholars have already used it to analyse role conceptions of reporters in times when potentially everyone is a journalist (Eldridge, 2017; Lewis, 2012; Rosen, 2006). It is therefore somewhat strange that, although adduced to stabilize processes of hybridization, these authors do not juxtapose boundary-work and the emerging concept of hybridity as the two sides of one and the same coin. This juxtaposition is warranted because, as illustrated in this dissertation, both the process of hybridization or 'co-production' and the process of boundary-work are simultaneously involved in the production of health news. In other words, applying the concept of boundary-work to analyse (digital) journalism is not new but explicitly putting boundary-work on a par with notions of hybridity and co-production is innovative.

Particularly noteworthy in this respect is the theoretical contribution by Laura Ahva and Steen Steensen to "*The Routledge Companion to Digital Journalism Studies*" in which they state that "digital journalism studies have evolved from being dominated by a discourse of *revolution*, via *evolution*, to a discourse of *deconstruction*" (Ahva & Steensen, 2017, p. 25). This interpretation roughly corresponds to the different historical waves of both news sourcing (cf. point 2.1) and digital journalism (cf. point 2.2.1). However, the overview of digital journalism research as discussed here unfolds in four waves, not three. This is not an error. Merely, this discrepancy indicates that Ahva and Steensen's analysis of the final phase of "deconstruction" is incomplete. The deconstruction of journalism as hybrid assemblies of technologies, actors, ideas, and norms as discrete (and sometimes even fractured) entities fuels a sense ontological uncertainty. Consequently, instances of co-production or hybridity are always stabilized through boundary-work. Therefore, rather than referring to the final phase of digital journalism research as "deconstruction", which, as argued by Ahva & Steensen (2017, p. 25), "currently dominates the field", this dissertation wants to embark on a new era of *reassembly*.

A final reason why Ahva and Steensen's use of the term "deconstruction" is a bit uncanny is because "deconstruction" is not a neutral term. Associated with postmodernist thinking, deconstruction refers to a *linguistic* method of *deconstructing* postmodernism's characteristic disbelief in universal knowledge because this method is able to *discursively* uncover the underlying tensions in modernity's grand narrative (Vermeersch & Braeckman, 2008). However, since deconstruction is negatively associated with linguistic reductionism (i.e. modernity is nothing more than language), it sent a wave of chaos, disorder and even disappointment through modern Western intellectual thought. It seems that the correspondence between the postmodern notion of deconstruction and the hybrid turn in journalism lies in this feeling of uncertainty. In a similar fashion, hybridity spurs a sense of "messiness" or ontological fluidity and even uncertainty about the ontological status of journalism

(Deuze, 2008b; Karlsson, 2012; Larsson et al., 2016; Lewis et al., 2013; Witschge et al., 2018). In this respect, it seems acceptable to refer to this final 'hybrid' phase of digital journalism research as "deconstruction". Nevertheless, since both the hybrid turn in journalism studies and the material turn are reactions precisely against dominant modes of modern and postmodernist thinking, the term "deconstruction" seems wholly inappropriate for referring to the latest stage of digital journalism research.

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ENGLISH SUMMARY

This dissertation's principal message is that the production of health news should not be interpreted as a linear translation of specific, often very technical, scientific information from the world of biomedicine to a wide audience. In this interpretation, journalists assume the role of "translators" who convert the language of science into understandable "lay terms". Nevertheless, journalists are often criticized by biomedical professionals for being bad translators. Apparently, there seems to be some kind of mismatch between journalism and science.

Why is the translation metaphor problematic? There is something fundamentally wrong with considering the production of health news as an exercise of translation because such conceptualizations are inscribed in the presupposition that the world of "science" constitutes a special domain that is wholly separate from "society". However, this is not the case. Science and journalism operate within one and the same social context. Hence, since journalism and science are both embedded within similar societal contexts, they are also subject to similar cultural, commercial and political influences. To think that science is inherently more immune to such influences than journalism is simply untenable. Both journalists and scientists operate according to a fixed and collectively agreed upon set of rules and practices which they have learnt in designated schools and educational programs. That the standard practices of either one profession would be inherently better or more objective is refuted in this dissertation.

But then, if not in terms of translation, how should health news be looked at? The key to solving this conundrum is the notion of co-production. This implies that the production process of health news is actually much more complex than a simple transferral of information between two contexts. First, news sources for health news are more diverse than just those that can be considered as "biomedical authorities". For instance, doctors, scientists, researchers or professors can be defined as "biomedical authorities". Secondly, since the practice of science does not occur in a social void but rather is part of the same societal context as journalism, it is not possible to say that the language of science is more 'neutral' or 'objective' than the language of journalism. In fact, biomedical objects and subjects (such as illnesses, molecules, patients, doctors, hospitals, etc.) are social constructs which are integral parts of the world we live in. In other words, the notion of 'social construct' should not be interpreted as a mirror of reality because that would require that the social construct (i.e. the mirror) and the reality it reflects are separate.

This perspective on society, language and science is also referred to as a materialist perspective. A concrete example to elucidate this abstract idea seems in place. Imagine, hypothetically, that someone was to pose the following question: "What do you know about Ebola?" You could answer that it is an

infectious disease. That it is an epidemic that predominantly occurs in West-African countries. That it is a potentially deadly disease. That vaccines to prevent people from getting ill are available but that recovery afterwards is also possible. You might also think that people in Africa need to be informed about how Ebola can spread from one person to another because the educational system in West-African countries is poorer than where you live. Even though only few (or even none) of us have actually visited the Ebola-stricken regions or have seen how the disease affects people in real-life, we do seem know a great deal about this epidemic. In other words, we only know Ebola through its mediated representations in health news. That these representations are not just “representations” but integral parts of reality becomes clear when politicians decide to send relief workers or emergency supplies. But also that you might be assuming that the African population is less well educated to deal with communicable diseases (which could lead to stigmatization) is a direct consequence of health news (in the real world).

Building on the theoretical assumptions of materiality, this dissertation sets out to trace who exactly partakes in the assumed process of health news co-production. Who influences health coverage in Flanders? How and where do news stories originate? And how can this all be explained? In order to answer these questions, this dissertation explores the news sourcing practices of health journalists. In addition, different media types are compared to discover whether convergence, synergies, mergers and acquisitions in the Flemish media ecosystem have contributed to the homogenization of health news across different media types. Specifically, quantitative content analysis of Flemish health news in various media types as well as qualitative semi-structured interviews with editors-in-chief of legacy media brands and health stakeholders who often appear as sources in health news will be combined to answer the aforementioned questions.

Overall, results illustrate that large shares of news sources in health news are indeed “biomedical authorities”. Yet, this substantially differs for the different media types under scrutiny. A second notable result is the attention that is given to ordinary citizens and patients. This is certainly the case in television news, but also – albeit to a lesser extent – in women’s magazines. This is an important evolution because, if patients feature centrally in the story, they are often addressed as consumers (rather than as patients!) who, among the myriads of available information, must individually and rationally make conscious choices for maintaining in (or for recovering to) good health. Despite the theoretical advantages of having direct access to thousands of health websites, people are sometimes paralyzed by the sheer quantity of available resources for health.

Despite the frequent occurrence of “biomedical authorities” and ordinary citizens as news sources in health news, the overall source pool is characterized by a broad range of other news sources (who are sometimes not typically associated with health). Examples of such “unexpected” sources are

philosophers and (bio) ethicists, politicians, activists, TV-chefs, union members, social scientists, etc. This can be explained by the fact that health is becoming an increasingly “politicized” topic. Health issues can spur quite heated public debates. Just think about prenatal testing (e.g. to diagnose whether the unborn baby has Down syndrome), stem cell research, genetic modification, euthanasia or abortion. Clearly, health is much more than just science.

Another very important area of concern is online health news. A striking observation is that websites of legacy media brands (e.g. www.hln.be or www.thetimes.co.uk) substantially differ from net-native health news websites (e.g. www.gezondheid.be or www.healthnewsreview.org). This conclusion is reached by scrutinizing how health news websites employ hyperlinks. Whereas net-native health news websites constitute real online hubs via which users can easily navigate to additional health-related information in a few simple clicks, the websites of legacy media brands only scarcely present hyperlinks that redirect users to further health-related content. This is in the first place attributable to legacy media’s protectionist business plans because most hyperlinks on these websites point to the websites of other brands that belong to the overarching media conglomerate. Often the added value of such hyperlinks for journalism (and therefore also for news consumers) is limited.

Finally, it should be noted that health news websites in cyberspace need to compete against a broad variety of other (non-journalistic) websites about health. In order to be perceived as more credible or trustworthy, health websites often assume the tone, style and lay-out of news websites. Sometimes the publishers of health websites are transparent about who they are and what they stand for. Of course, websites by pharmaceutical companies, patient advocacy organizations, sickness funds or private health insurers, can also contain valuable information on particular topics. It is also often the case that such health websites have a designated “news section” even though they are not actually published by media companies. We are not saying that the information on these websites is unreliable but rather that the presented information is possibly biased and one-sided. It is therefore paramount to check the identity of health websites in order to find out who produced the information as well as with what purpose the website was published. This dissertation discovered that websites do not always communicate honestly and transparently about their identity and intentions. Especially when search engines are used to find news about health, it can be very tricky to distinguish conspiracy-websites, pseudo-scientific health news websites and downright deceptive, so-called “fake news” websites from genuine (well-intending) news websites.

NEDERLANDSE SAMENVATTING

De belangrijkste boodschap van dit doctoraat is dat de productie van gezondheidsnieuws niet mag worden gezien als een lineaire vertaling van bepaalde, vaak technische, wetenschappelijke informatie vanuit de biomedische wereld naar een breed publiek. In deze situatie treden journalisten dus op als “vertalers” die wetenschappelijke taal omzetten in “mensentaal”. Echter, vaak worden journalisten er vanuit biomedische hoek dikwijls van beschuldigd slechte vertalers te zijn.

Maar wat is er dan precies mis met deze vertalingsmetafoor? De vertalingsmetafoor klopt niet omdat hij ervan uitgaat dat de wereld van de “wetenschap” en de wereld waarin de “gewone mens” leeft (ook wel maatschappij of “society” genoemd) twee verschillende werelden zijn. En dat strookt niet met hoe wetenschap en journalistiek bedreven worden. Ook de wetenschap maakt, net zoals de journalistiek, deel uit van “de maatschappij”. Beide praktijken zijn sociaal ingebed in de maatschappij en zijn daardoor onderhevig aan culturele, commerciële en politieke invloeden. Te denken dat wetenschap inherent minder beïnvloed zou zijn door die maatschappij dan de journalistiek is op z’n minst gezegd een beetje raar. Zowel journalisten als dokters/wetenschappers volgen specifieke regels en praktijken. Vaak hebben ze (lang) gestudeerd om hun beroep zo goed mogelijk te kunnen uitoefenen. Dat de regels en praktijken van het ene beroep inherent beter of meer objectief zouden zijn wordt door deze doctoraatsstudie niet ondersteund.

Hoe moeten we gezondheidsnieuws dan wel bekijken? De sleutel om dat vraagstuk op te lossen ligt bij het concept van co-productie. Dat betekent dat het productieproces complexer wordt opgevat dan een simpele vertaling van informatie tussen twee contexten. Ten eerste, zijn de bronnen voor gezondheidsnieuws veel meer gediversifieerd dan enkel diegene die we in dit doctoraat “biomedische autoriteiten” zullen noemen. Bijvoorbeeld, dokters, onderzoekers, wetenschappers of professoren kunnen worden gezien als “biomedische autoriteiten”. Ten tweede, aangezien wetenschap niet wordt bedreven in het ijle, maar net zoals journalistiek ook deel uitmaakt van de maatschappij, spreekt de wetenschap niet in een objectieve, neutrale taal. Ook biomedische objecten en subjecten (zoals ziektes, moleculen, patiënten, dokters, ziekenhuizen, enz.) zijn sociale constructies. Deze constructies zijn echter van dien aard dat ze worden opgevat als integrale delen van onze leefwereld. Met ‘sociale constructie’ wordt hier dus niet bedoeld dat woorden, en zelfs hele nieuwsverhalen, moeten worden opgevat als een spiegel van onze leefwereld want dat zou betekenen dat dergelijke constructies geen deel kunnen uitmaken van diezelfde leefwereld.

Dit perspectief op de maatschappij, taal, en wetenschap wordt ook wel een materialistisch perspectief genoemd. Een voorbeeld kan helpen om dit abstracte idee beter te begrijpen. Beeld je in dat iemand je zou vragen wat je wist over ebola. Dan zou je kunnen zeggen dat ebola een besmettelijk

virus is. Dat het een epidemie is die vooral woedt in West-Afrika. Dat je eraan kan sterven, maar dat er ook een vaccin is. Dat ook curatieve behandelingen bestaan. Je zou kunnen denken dat mensen in Afrika moeten worden voorgelicht over hoe besmettelijke ziektes worden overgedragen van de ene naar de andere persoon omdat mensen daar minder lang naar school geweest zijn, of zelfs helemaal niet. We weten heel veel over ebola, ondanks het feit dat waarschijnlijk niemand van ons al ooit echt in contact kwam met de ziekte. We kennen ebola dus enkel door haar representatie in de media. Dat die representatie niet zomaar een representatie is, maar wel een echt deel van de werkelijkheid, wordt duidelijk wanneer politici besluiten om hulpverleners of medicijnen te sturen. Maar ook dat je aanneemt dat de Afrikaanse bevolking minder goed weet hoe om te gaan met besmettelijke epidemieën (hetgeen kan leiden tot stigmatisering) is een concreet gevolg (in de echte wereld) van gezondheidsnieuws.

Met deze bagage achterin de rugzak gaat dit doctoraat op zoek naar wie nu precies deel uitmaakt van de co-productie van gezondheidsnieuws. Welke zijn de bronnen die de gezondheidsberichtgeving in Vlaanderen beïnvloeden? Hoe komt nieuws over gezondheid tot stand? En hoe kunnen we dit alles verklaren? Om dat te achterhalen gaat deze studie dieper in op het journalistiek bronnengebruik bij gezondheidsnieuws. We gaan ook na in hoeverre het bronnengebruik verschilt voor diverse media types. We doen dat om te onderzoeken of convergentie, synergiën en overnames in het Vlaamse medialandschap ertoe hebben geleid dat het nieuws een platte eenheidsworst is geworden. Meer bepaald zal de kwantitatieve methode van inhoudsanalyse (toegepast op de nieuwsinhoud zoals we die vinden in verschillende media types) worden gecombineerd met het uitvoeren van kwalitatieve interviews, enerzijds met hoofdredacteurs van verschillende traditionele Vlaamse nieuwsmerken, anderzijds met spelers op het vlak van gezondheid die vaak optreden als nieuwsbron in gezondheidsnieuws.

In het algemeen vinden we dat een groot deel van de nieuwsbronnen voor gezondheidsnieuws inderdaad “biomedische autoriteiten” zijn. Toch zijn er voor de diverse media sterke verschillen op dit vlak. Een tweede opvallende bevinding is de grote aandacht voor gewone burgers en patiënten. Zeker op televisie, maar ook (hetzij in beperktere mate) in vrouwenbladen, krijgen patiënten een breed forum om zelf te spreken over hoe ze ziekte en gezondheid ervaren. Dit is een belangrijke evolutie omdat, wanneer gezondheidsnieuws patiënten centraal stelt, deze vaak worden geprojecteerd als consumenten (i.p.v. patiënten) die, tussen alle beschikbare informatie over gezondheid, individuele, weloverwogen, rationele keuzes moeten maken in functie van hun eigen gezondheid (of die van familie of vrienden). Hoewel er heel veel nieuws en informatie beschikbaar is over gezondheid, kan het soms overweldigend zijn om tussen al die info precies de ‘juiste’ informatie te vinden.

Ondanks het frequent voorkomen van zowel biomedische autoriteiten en gewone burgers als bron voor gezondheidsnieuws, is er voor het overige ook een zeer grote diversiteit aan nieuwsbronnen. Soms zijn dat ook bronnen die je niet meteen zou verwachten zoals filosofen en (bio)ethici, politici, activisten, TV-koks, vakbondsmensen, sociale wetenschappers, enzovoort. Dat komt omdat gezondheid ook steeds meer wordt “gepolitiseerd”. Gezondheid kan echte controverses teweegbrengen. Denk maar aan prenatale testen (bijv. om de kans op downsyndroom bij ongeboren baby's te achterhalen), stamcelonderzoek, genetische manipulatie, euthanasie of abortus. Gezondheid is meer dan alleen wetenschap.

Een ander zeer belangrijk fenomeen is online gezondheidsnieuws. Heel opvallend is dat de online nieuwswebsites van de klassieke media (bijv. www.hln.be) zich heel anders gedragen dan nieuwswebsites die online het levenslicht zagen (bijv. www.gezondheid.be). We concludeerden dit aan de hand van hoe websites gebruik maken van hyperlinks. Bij websites van de klassieke media vinden we amper hyperlinks naar verdere gezondheidsgerelateerde informatie, terwijl de online nieuwswebsites wel echte knooppunten zijn via dewelke je makkelijk (in een paar muisklikken) kan verder surfen naar andere online bronnen die verdere info verschaffen over gezondheid. Dit lijkt vooral te wijten het protectionistische zakenplan van de klassieke media. Zij hyperlinken nagenoeg uitsluitend naar andere merken die ook behoren tot de portefeuille van het overkoepelende mediabedrijf. Vaak is de journalistieke waarde van dergelijke hyperlinks beperkt en is het dus twijfelachtig of ze een meerwaarde vormen voor het nieuws (en dus uiteindelijk voor de nieuwsgebruiker).

Als laatste moet het ook gezegd worden dat gezondheidsnieuws in cyberspace moet opboksen tegen een hele resem andere types van gezondheidswebsites. Vaak meten zulke websites zich de *'look & feel'* van een echt journalistiek medium aan om zo meer gezag en betrouwbaarheid uit te stralen. Soms zijn de makers van dergelijke websites transparant over wie ze zijn en welke bedoelingen ze hebben. Zo bevatten de websites van, bijvoorbeeld, patiëntenorganisaties, farmaceutische bedrijven, ziekenfondsen of privé-verzekeraars ook een heleboel nuttige informatie. Bovendien hebben dergelijke websites vaak ook een eigen 'nieuwpagina' of 'nieuwsrubriek', ook al zijn ze geen mediabedrijf. We zeggen niet dat deze informatie onbetrouwbaar is, maar wel dat ze mogelijk éénzijdig en gekleurd is. Daarom is het online heel belangrijk te kijken naar wie nu precies de informatie produceerde en waarom. Tijdens dit onderzoek werd echter ontdekt dat websites niet altijd transparant en eerlijk over hun identiteit en bedoelingen communiceren. Zeker wanneer zoekmachines worden gebruikt is het soms heel moeilijk de samenzweringswebsites, pseudo-wetenschappelijke en ronduit bedrieglijke websites (zgn. “*fake news*”) te onderscheiden van de journalistiek zoals we die kennen uit de traditionele pers.

APPENDICES

Due to matters of size, appendices will not be included here. Instead, all appendices are available in digital form at: <http://users.ugent.be/~joystroo/index.html/>

The raw datasets of the quantitative analyses can be made available upon request.

In order to ensure anonymity as agreed upon in the confidentiality agreement, recordings and transcriptions of the interviews will not be shared.

- Appendix 1.** Overview selected media brands for the quantitative analyses (chapters 5, 6, 7)
- Appendix 2.** Codebook for comparative content analysis “Tracing the sources” (chapter 5)
- Appendix 3.** Registration form for codebook of comparative content analysis “tracing the sources” (chapter 5)
- Appendix 4.** Codebook for content analysis of hyperlinks on net-native health news websites “hypertextuality in online health news” (chapter 6)
- Appendix 5.** Codebook for comparative content analysis of hyperlinks “Finding the News and Mapping the Links” (chapter 7)
- Appendix 6.** Overview of inter-coder reliability tests (chapters 5, 6, 7)
- Appendix 7.** Semi-structured guide with open-ended questions for media organizations in English (chapter 8)
- Appendix 8.** Semi-structured guide with open-ended questions for health stakeholders in English (chapter 8)
- Appendix 9.** Confidentiality agreement in Dutch (‘Vetrouwelijkheidsovereenkomst’)