

Article

Information Flow and Health Policy Literacy: The Role of the Media

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Abstract: People increasingly can and want to obtain and generate health information themselves. With the increasing do-it-yourself sentiment comes also the desire to be more involved in one's health care decisions. Patient driven health-care and health research models are emerging; terms such as participatory medicine and quantified-self are visible increasingly. Given the health consumer's desire to be more involved in health data generation and health care decision making processes the authors submit that it is important to be health policy literate, to understanding how health policies are developed, what themes are discussed among health policy researchers and policy makers, to understand how ones demands would be discussed within health policy discourses. The public increasingly obtains their knowledge through the internet by searching web browsers for keywords. Question is whether the "health consumer" to come has knowledge of key terms defining key health policy discourses which would enable them to perform targeted searches for health policy literature relevant to their situation. The authors found that key health policy terms are virtually absent from printed and online news media which begs the question how the "health consumer" might learn about key health policy terms needed for web based searches that would allow the "health consumer" to access health policy discourses relevant to them.

Keywords: health policy literacy; media; knowledge transfer; health information

1. Introduction

How we envision health care constantly changes. Advances in science and technology including health information technology are one dynamic influencing visions and reality of various aspects of health care including the facet of who generates, conveys and acts on health information. In recent times one can observe the move towards a more active role of the “patient”, the emergence of the health consumer [1–11], a move towards participatory medicine [12,13], quantified self-tracking [14,15] and patient driven health-care models [14] which among others change the dynamic of who generates, conveys and acts upon health information. The extent to which health consumers are able to act upon information and actively participate will depend on their level of health policy literacy. According to Schoole, “Stakeholders required a certain level of policy literacy to effectively participate in the policy process and the model within which policy development unfolded.” [16] According to Cross, Mungadi and Rouhani, Schoole perceives as a “lack of policy literacy”, the lack of understanding of the complexities entailed in the process of development, negotiation, adoption and implementation of policy in a particular context [17]. According to Malone, “Basic health policy literacy means having some understanding of the ways policy issues have been shaped by larger social forces, and how they have been addressed in the past.” [18]

The authors submit that health policy literacy includes among others (a) the understanding of how policies are developed and their social embeddedness; (b) the understanding of the history of presented arguments in a given health policy discourse and the consequences flowing from contemporary arguments used; (c) how policies and their discourses might be impacted by emerging social and scientific and technological developments [19–28].

The authors submit that there is a need for an increased health policy literacy among health consumers in order to be able to contribute in a meaningful way to the shaping of health policies given constantly changing laws, policies and actions frameworks for health care deliverance and public health [29–31], changing threats to health and wellbeing and even changes to the very meaning of health [31].

Many academic journals have health policy sections such as the American Journal of Public Health but how does the public achieve health policy literacy and health policy discourse literacy? Given that the public, health consumers included, obtains information increasingly online by inputting keyword queries into search engines, the authors submit that the public must as one skill have the knowledge of keywords that define various health policy discourses. Searching with the right keywords opens the gate to obtaining health policy and health policy discourse information, which is a prerequisite to health policy literacy.

Diffusion of knowledge through printed media is seen for a long time as an essential fabric of society enabling participation in society [32–38].

The authors submit that media have a vital role to play in generating keyword recognition knowledge for the public. The authors present in this paper the visibility of key health policy terms in news media, medical and health journals. The authors found that key health policy terms were virtually absent from printed and online news media which begs the question how the public develops the knowledge of key search terms that allows them to access key health policy discourses.

2. Results

Although there are health policy terms such as health insurance, well-being and health care reform that are mentioned more in the news media group than in the medical and public health journal group or health journal database group the authors found that the frequency of most key health policy terms such as health economics, health ethics, determinants of health, burden of disease, social wellbeing, tele-health, e-health, disability adjusted life years, health technology, health technology assessment and evidence based medicine is 10–100 fold lower in the news media group versus the medical and public health journal group and health journal databases group (Table 1).

Table 1. Frequency of health policy terms covering different areas in different types of publications.

Keywords	News media (New York Times; CNN; Times, UK)		British Medical Journal (BMJ), AJPH and Lancet		Health journal databases	
	°	% of “health”	°	% of “health”	°	% of “health”
Health	1185982	100.000	246401	100.000	4652279	100.000
Patient	346258	29.196	247983	100,642	5324061	114.440
Healthcare	130636	11.015	34829	14.135	1158108	24.893
Public health	70092	5.910	106319	43.148	764042	16.423
Health economics	205	0.017	4187	1.6992	21513	0.462
Health client	47	0.004	8	0.00325	245	0.005
Health ethics	32	0.003	533	0.216	1710	0.037
Determinants of health	20	0.002	642	0.2605	6909	0.149
Burden of disease	70	0.006	1381	0.560	10902	0.234
Social well being	502	0.042	361	0.1465	4320	0.093
Telehealth	25	0.002	32	0.01299	6029	0.130
e-health	39	0.003	362	0.1469	4850	0.104
Disability adjusted life years	72	0.006	390	0.15828	1785	0.038
Health technology	731	0.062	802	0.3254	11317	0.243
Health technology assessment	25	0.002	579	0.2349	6303	0.135
Evidence based medicine	125	0.011	2126	0.8628	58710	1.262

If one assumes that health policy terms are first used in health related academic discourses it might be understandable that newer terms such as tele-health and e-health are less visible in the public media as it takes time for terms to diffuse from one discourse to another. However, most terms are around for some time in the health policy and research literature. Interestingly for some newer developments certain terms with health policy implications are invisible in all three groups. Searching the New York Times for terms such as “participatory medicine” or “quantified self” or “quantifying self”, or “self quantified” do not generate any hits. The phrase “user generated data” only generates 15 hits. All these terms do not generate hits in the American Journal of Public Health, Lancet or the British Medical Journal and none to below five hits in the different health databases searched for data for this paper. These terms are available in media

outlets that cover cutting edge developments in a foresight manner such as TED talks. This suggests that it is not only the non-academic media that has problems with introducing their readers to cutting edge developments with health policy implications but that the academic media also has problems. Tables 2–4 give the hit results in more detail for the individual members of the different publication groups.

Table 2. Frequency of health policy terms covering different areas in British Medical Journal (BMJ), AJPH and Lancet.

Keywords	BMJ		Lancet		AJPH		All Together	
	All fields	% of "health"	All fields	% of "health"	All fields	% of "health"		% of "health"
Health	165099	100.00	44724	100.00	36578	100.00	246401	100.000
Patient	232592	140.88	1536	3.43	13855	37.878	247983	100,642
Health care	19506	11.81	7483	16.73	7840	21.434	34829	14.135
Health economics	3502	2.12	253	0.57	432	1.181	4187	1.6992
Health client	0	0.00	0	0.00	8	0.022	8	0.00325
Health reform	272	0.16	150	0.34	258	0.705	680	0.2764
Health ethics	256	0.16	19	0.04	116	0.317	533	0.216
"Determinants of health"	290	0.18	236	0.53	410	1.121	642	0.2605
Health systems	1047	0.63	1146	2.56	737	2.015	2930	1.189
Public health	47457	28.74	16510	36.92	34728	94.942	106319	43.148
Health Insurance	5189	3.14	945	2.11	2681	7.330	8815	3.577
Health care reform	421	0.25	134	0.30	341	0.932	896	0.3636
Burden of disease	442	0.27	689	1.54	250	0.683	1381	0.560
Global health	606	0.37	1158	2.59	540	1.476	2304	0.935
health research	2237	1.35	1426	3.19	1838	5.025	5501	2.232
social health	191	0.12	84	0.19	257	0.703	532	0.2159
Well being	5244	3.18	428	0.96	2565	7.012	8237	3.342
Social well being	134	0.08	21	0.05	206	0.563	361	0.1465
Environmental health	1223	0.74	431	0.96	1963	5.367	3617	1.4679
Medical health	235	0.14	30	0.07	437	1.195	702	0.2849
Health services	17064	10.34	3363	7.52	8898	24.326	29325	11.9013
Telehealth	22	0.01	5	0.01	5	0.014	32	0.01299
e-health	148	0.09	18	0.04	196	0.536	362	0.1469
Health policy	7771	4.71	1145	2.56	3075	8.407	11991	4.8664
Health law	307	0.19	86	0.19	855	2.337	1248	0.5064
Disability adjusted life years	103	0.06	238	0.53	29	0.079	390	0.15828
Health technology	590	0.36	172	0.38	40	0.109	802	0.3254
Health technology assessment	450	0.27	120	0.27	9	0.025	579	0.2349
Evidence based medicine	1551	0.94	492	1.10	83	0.227	2126	0.8628

Table 3. Frequency of health policy terms covering different areas in Health Journal bundled in different databases.

Keywords	Canadian Health Research Collection 1999–today	CINAHL 1974–2010		AgeLine (AARP) database 1978–2010		Health Source Consumer Edition 1984–2010		Health Source: Nursing Academic Edition 1952–2010		Informa Healthcare 1918–2010		Pubmed 1870–2010
	Title, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”
Health	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Patient	61.815	41.279	35.133	12.524	30.294	36.502	44.308	120.528	89.075	420.981	157.947	192.941
Health Care	70.206	19.077	22.448	23.881	32.670	15.511	20.739	17.557	29.259	16.384	22.999	22.987
Health economics	11.119	0.078	0.432	0.139	0.091	0.023	0.104	0.110	0.748	0.143	0.926	0.321
Health client	0.149	0.004	0.008	0.011	0.009	0.000	0.002	0.000	0.009	0.020	0.014	0.001
Health reform	5.272	0.313	0.178	0.407	0.194	1.351	0.583	0.567	0.509	0.245	0.174	0.089
Health ethics	0.872	0.043	0.040	0.000	0.006	0.053	0.029	0.065	0.088	0.000	0.059	0.017
“Determinants of health”	17.616	0.171	0.175	0.128	0.170	0.045	0.120	0.153	0.395	0.041	0.051	0.000
Health systems	13.960	0.814	2.413	0.139	0.293	0.743	2.308	0.564	2.374	0.061	1.187	0.415
Public health	62.595	6.400	14.348	1.028	3.173	8.446	15.703	8.648	26.863	3.085	23.539	14.038
Health Insurance	15.110	1.177	1.563	2.890	8.440	1.697	4.287	1.423	4.012	0.245	2.005	2.304
Health care reform	7.091	0.992	1.106	0.856	2.675	1.329	1.215	1.089	1.162	0.347	0.267	1.145
Burden of disease	5.235	0.072	0.176	0.021	0.065	0.098	0.125	0.153	0.573	0.204	0.941	0.112
Global health	3.174	0.399	0.316	0.086	0.095	0.495	0.294	0.666	0.787	0.020	0.608	0.223
health research	29.905	0.656	1.819	0.235	0.321	0.533	1.539	0.961	3.839	0.613	4.255	1.390
social health	4.325	0.046	0.104	0.632	1.035	0.015	0.085	0.053	0.224	0.041	0.323	0.054

Table 3. Cont.

Keywords	Canadian Health Research Collection 1999–today	CINAHL 1974–2010		AgeLine (AARP) database 1978–2010		Health Source Consumer Edition 1984–2010		Health Source: Nursing Academic Edition 1952–2010		Informa Healthcare 1918–2010		Pubmed 1870–2010
	Title, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”	Text, % of “health”	Title, % of “health”
Well being	8.261	1.853	3.215	14.301	40.604	0.616	3.335	2.087	5.827	7.947	169.410	1.429
Social well being	0.575	0.014	0.094	0.054	0.321	0.000	0.051	0.013	0.206	0.041	0.333	0.033
Environmental health	11.027	0.593	1.018	0.021	0.065	1.269	4.351	1.129	3.667	0.388	2.903	1.884
Medical health	4.010	0.015	0.080	0.064	0.235	0.008	0.054	0.019	0.181	0.000	0.278	0.041
Health services	61.017	2.584	15.533	3.875	17.165	1.141	6.308	2.706	11.509	5.618	8.827	13.621
Telehealth	6.757	0.420	0.219	0.235	0.110	0.150	0.118	0.145	0.119	0.082	0.094	0.050
e-health	2.877	0.176	0.124	0.021	0.015	0.135	0.143	0.095	0.192	0.061	0.317	0.038
Health policy	3.824	1.193	2.816	0.996	0.830	0.390	1.735	1.137	3.657	0.899	2.418	2.763
Disability adjusted life years	0.446	0.009	0.028	0.000	0.002	0.008	0.026	0.018	0.101	0.020	0.163	0.026
Health Technology	12.437	0.182	0.313	0.021	0.032	0.023	0.094	0.090	0.359	0.204	0.577	0.112
Health Technology Assessment	10.562	0.136	0.145	0.000	0.011	0.000	0.021	0.055	0.233	0.123	0.388	0.063
Evidence based medicine	1.485	0.925	0.484	0.086	0.108	0.203	0.267	0.704	1.137	1.001	1.286	2.055

Table 4. Frequency of health policy terms covering different areas in the New York Times; The Times, UK and CNN.

Keywords	NYT 1850–today	CNN	The Times UK 2003–25 June 2010	All
	Text, % of “health”	Text, % of “health”	Text, % of “health”	Text, % of “health”
Health	100 = 1,069,577 hits	100 = 35,475 hits	100 = 70,620 hits	100 = 1,175,672 hits
Patient	27.5781	27.7237	40.9870	28.3879
Health care	11.0241	22.2128	2.0688	10.8238
Health economics	0.0130	0.0226	0.0736	0.0169
Health client	0.0042	0.0000	0.0000	0.0038
Health reform	0.0837	0.6399	0.1813	0.1063
Health ethics	0.0014	0.0395	0.0028	0.0026
“Determinant of health”	0.0009	0.0028	0.0085	0.0014
Health systems	0.7978	0.6934	0.1813	0.7576
Public health	6.4691	5.3305	5.2747	6.3630
Health Insurance	3.7356	4.5920	1.7077	3.6396
Health care reform	0.2667	4.6850	0.0496	0.3870
Burden of disease	0.0046	0.0113	0.0297	0.0063
Global health	0.0514	0.2791	0.1742	0.0657
health research	0.3336	0.2509	0.3653	0.3330
social health	0.0609	0.0592	0.0864	0.0623
Well being	2.9700	0.0000	1.5718	2.7964
Social well being	0.0463	0.0000	0.0099	0.0427
Environmental health	0.2395	0.3242	0.8553	0.2791
Medical health	0.1582	0.5666	0.0453	0.1637
Health services	3.9714	0.8795	1.8253	3.7492
Telehealth	0.0009	0.0282	0.0071	0.0021
e-health	0.0205	0.0310	0.0212	0.0208
Health policy	0.4148	0.2734	0.5537	0.4189
Health law	0.2050	0.0479	0.0850	0.1931
Disability adjusted life years	0.0001	0.2001	0.0000	0.0061
Health technology	0.0653	0.0282	0.0269	0.0618
Health technology assessment	0.0008	0.0282	0.0085	0.0021
Evidence based medicine	0.0065	0.0000	0.0637	0.0098

As for the difference between the British Medical Journal, Lancet and the American Journal for Public Health (medical and public health journal group, (Table 2)), the BMJ has at least double the hits for the terms patient and health economics; Lancet leads the hits for the terms health systems, burden of disease, disability adjusted life years and global health whereas the American Journal of Public Health leads in 17 other terms. However the gap between position one and two in counts for a given term never exceeds the limit of 5-times less. The results between different health journal databases (Table 3) generated roughly the same hit frequency pattern as evident in AJPH, BMJ and Lancet.

As for the difference between the NYT, CNN and the Times (UK) (results for the News Media, Table 4) they show remarkable similar percentages for most terms with only a few being more pronounced in one source over the others. Even more remarkable all of them have a very low level to no hits for the key health policy areas terms health economics, health ethics, determinants of health, burden of disease, social well-being, tele-health, e-health, disability adjusted life years, health technology, health technology assessment and evidence based medicine. Indeed if we compare the average of these terms in the media with the hit frequency in for example the AJPH one finds a 30-fold higher frequency count in the AJPH for the term burden of disease; an at least 50-fold higher frequency count in the AJPH for the term health economics, health ethics and more than a 100-fold higher frequency count in AJPH for the term disability adjusted life years, health technology, health technology assessment and evidence based medicine (in relation to the term health used in all the sources).

3. Experimental Section

The authors performed a frequency analysis of health policy discourse defining terms such as health economics, health reform, health ethics, determinants of health, health systems, health insurance, health care reform, burden of disease, global health, social health, well-being, social well-being, environmental health, medical health, health services, tele-health, e-health, health law, disability adjusted life years, health technology, health technology assessment, evidence based medicine appearing in three distinct groups of publications. (a) Newspapers and online media (New York Times from 1850 to today; CNN from 1980 to today; The Times UK from 2003 to 2010); (b) Medical and Public health journals (British Medical Journal from 1840 to today; the Lancet from 1840 to today; the American Journal for Public Health from 1911 to today) and (c) various academic databases covering health literature (Canadian Health Research Collection 1999–today; CINAHL 1974–2010; AgeLine (AARP) database 1978–2010; Health Source Consumer Edition 1984–2010; Health Source: Nursing Academic Edition 1952–2010; Informa Healthcare 1918–2010 and Pubmed). The New York Times archives were systematically searched using (a) the ProQuest search engine (provided by the University of Calgary) for articles from 1851 to 2006 and (b) the archive search engine on the New York Times website for articles from 2006 to August 16, 2010). The NYT was searched for various health policy keywords, first as a full text search, and then as a title search (if the text-search generated more than 300 hits). For CNN, British Medical Journal, American Journal of Public Health and Times (UK) the archive search engines on their respective websites were used. Health Journal databases were searched through the University of Calgary databases provided. The search was performed July–August 2010.

Limitation: The health policy discourse defining terms used in this paper were generated by asking three health policy scholars what keywords would come to their minds. The list we used is not an objective or exhaustive one; for a given health topic different health policy terms might be looked at [39,40]. Nevertheless, the terms given by the three health policy scholars reflect terms used frequently in health policy discourses.

4. Discussion

So far little effort goes into developing health policy literacy of stakeholders. Although health consumer groups are seen as increasingly getting involved in health policy processes [41] it is less clear how much knowledge individuals of such groups have in regards to health policy discourses; no measure for health policy literacy exists. The Government of Canada and Canada's voluntary sector, announced in June 2000 a partnership with 200 national voluntary health organizations on health policy and program development [42], however it is not clear to date what the impact has been.

“Mass media agendas and health communication objectives can be authoritative allies or forceful foes when it comes to supplying the public with accurate and timely health information.” [43] Media are seen to influence public health policies and the behavior of the health consumer [44–48]. However problems are identified in the role mass media play [43,49,50]. An article by Gasher *et al.* illustrates that media tend to cover narrow scope angles over broad ones and the article gives various reasons as to why this preference in reporting takes place [51]. That the keywords from health policy discourses are not diffusing into media sources can be seen as one problem of how media report on health issues. Not giving the people the tools to be health policy literate keeps the power within the media to shape discourses. We submit that the lack of visibility of key terms used in health policy discourses within media sources constitutes a breach of the role media are supposed to play and hinders the democratization of the healthcare discourse. Given that health consumers increasingly might not want to influence the system through “their” health consumer group but rather want to directly influence the system, a higher health policy literacy of the individual is needed.

People believe that there is a need to create consumer-friendly terminologies reflecting the different ways healthcare consumers express and think about health topics [52,53]. The authors submit that this is only one needed direction. Keyword literacy of health consumers also has to exist in order to be able to find various health policy discourses. The health consumer needs concise keywords to search the internet and to become health policy literate. Searching terms such as “health policy” leads to too many hits to be really useful. How can one become health policy literate around the discourses of, for example “social determinants of health”, if one does not know the term to start with? The key terms have to diffuse from the health policy discourses into the public domain. This would allow people to access many different sources around a given health policy discourse from mass media to open access academic journals increasing their ability to form an opinion based on numerous sources increasing their literacy of evaluating the reporting of any given source on health policy issues.

5. Conclusions

If we continue to move down the road of a “health consumer” wanting to shape more and more health care delivery, the authors submit that the “health consumer” becoming more health policy literate is just as important as becoming health information and health literate. As a first step the public has to become familiar with key health policy terms so that they can find discourses linked to various health policy aspects online. That means the media have to familiarize the public with these terms, which so far is not happening. As is the information flow that is not working to produce health policy literate citizens.

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