From the Editors

Five Decades of HSR—By Words and Figures

There are many ways one can assess how a journal such as HSR has changed over time, but since we are an empirical journal, it seemed appropriate to review some data. This contribution examines the words used in the titles appearing in HSR during each decade as a jumping-off point for discussing how things have changed, or remained the same.

METHODS AND DATA

Our original idea was to just convey the changes via “word clouds” as shown in Figures 1 and 2, for the periods 1966–1975 and 2006–2015, respectively. When we attempted that with the raw data, however, the message was not very clear. One problem is that HSR (and the number of words in its titles) has grown markedly over time. In 1966–1975, we had 233 articles with 1,319 title words. In 2006–2015, there were 1,269 articles with 11,492 words in their titles. (These figures exclude grammatical articles, e.g., An, The.) Growth in the number of issues per volume, pages per issue, and supplements increased the number of articles over time. Our authors also became “wordier,” with the average number of substantive words per title increasing from 5.66 to 9.06. The number of authors per article also grew, so this may reflect allowing each to have his or her own say in the title.

A more substantive problem is that words by themselves convey only limited information, and wordcloud programs do not capture concepts immediately apparent to a researcher. For example, it is obvious that articles with the terms “cost” and “costs” in their titles are probably addressing similar issues. Wordclouds, however, do not combine “hospital” and “inpatient,” or more dramatically, “manpower” (used in the 1960s) and “workforce” (today.) Overcoming this limitation required a more qualitative approach. Robin Campbell provided spreadsheets for each decade showing the number of

times a specific word appeared in our titles. I first gathered together nearly identical words, for example, *cost* and *costs*, appearing reasonably frequently. An important problem with this approach is that in the first decade, there were roughly a tenth as many words as in the last decade. Thus, in the first time period, a word needed appear only a few times to seem frequent. For example, “*cost*” appeared nine times in 1966–1975, accounting to 0.68 percent of all the words in titles during that period. In 2006–2015, it appeared 51 times, but that was only 0.44 percent of all the words in titles. One might question whether nine times (or 0.68 percent) is a frequency worth discussing. The data, however, are not “well distributed”—in 1966–1975, there were 564 unique words and the most frequent, “*health*,” appeared only 56 times, accounting for 4.25 percent of the words in titles. Thus, to say anything, we need to focus on words that individually account for relatively small percentages. This is not quite as bad as it seems, however, because this analysis is about words, not the underlying focus of the articles. Categorizing each article in terms of what it truly addresses is far more complex. For example, titles using “*health care*,” “*health-care*,” and “*health services*” are likely referring to the same thing, but those with “*health*” alone might be referring to something quite different, for example, determinants of health. (Data are available on request for anyone wishing to do more analysis.)

In a second pass through the data, I grouped together some of the more commonly appearing words in ways that seemed to make sense (Table 1). Had this been a real (qualitative) research project, I would have enlisted colleagues who knew how to do this, we would have agreed on concepts, resolved differences in interpretations, and used more sophisticated software than spreadsheets. It also would have taken much more time.

RESULTS

The first question is whether the titles of our articles reflect the name of our journal. Individually (although probably rarely as a threesome) “*health*,” “*service(s)*,” and “*research*” are among the most commonly appearing words in

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Figure 1: Word Concepts Use in HSR Titles, 1966–1975

Figure 2: Word Concepts Used in HSR Titles, 2006–2015

our titles. In our first decade, collectively they accounted for 9.48 percent of all the words in our titles. By 2006–2015, they accounted for 4.78 percent.

The second section of Table 1 focuses on words that appear to relate to “What We Study.” Interpretations, here, are in the “eye of the beholder,” but

Table 1: Counts and Percentages of Words Reflecting Various Concepts Appearing in Titles of HSR Articles, by Decade

	1966-1975		1976-1985		1986-1995		1996-2005		2006-2015	
<i>Our Name</i>										
Health	56	4.25%	53	2.71%	106	3.19%	217	2.90%	318	2.77%
Service(s)	43	3.26%	34	1.74%	70	2.11%	100	1.33%	127	1.11%
Research	26	1.97%	26	1.33%	47	1.41%	85	1.13%	103	0.90%
<i>What We Study</i>										
Care	22	1.67%	44	2.25%	77	2.32%	243	3.24%	273	2.38%
Community	7	0.53%	9	0.46%	15	0.45%	34	0.45%	27	0.23%
Child, children	1	0.08%	8	0.41%	3	0.09%	35	0.47%	69	0.60%
Cost, costs	12	0.91%	28	1.43%	32	0.96%	52	0.69%	91	0.79%
Coverage, covering			1	0.05%	4	0.12%	16	0.21%	60	0.52%
Diseases, conditions	19	1.44%	23	1.17%	103	3.10%	312	4.16%	342	2.98%
Disparities, disparity							20	0.27%	66	0.57%
Equity, inequity			2	0.10%	4	0.12%	9	0.12%	6	0.05%
Low income, poor	1	0.08%	1	0.05%	3	0.09%	10	0.13%	15	0.13%
Ethnicity, race			1	0.05%	13	0.39%	45	0.60%	71	0.62%
Hispanic, Latino (subtotal)	1	0.08%	4	0.20%	2	0.06%	4	0.05%	7	0.06%
					22	0.66%	88	1.17%	165	1.44%
Drugs, pharmaceuticals, prescribing			1	0.05%	5	0.15%	33	0.44%	93	0.81%
Effective, effectiveness	2	0.15%	11	0.56%	9	0.27%	13	0.17%	18	0.16%
Efficiency, inefficiency	4	0.30%	2	0.10%	7	0.21%	8	0.11%	14	0.12%
Elderly			7	0.36%	16	0.48%	19	0.25%	18	0.16%
Expenditures, expenses			2	0.10%	13	0.39%	15	0.20%	29	0.25%
Healthcare	13	0.99%	14	0.72%	21	0.63%	110	1.47%	153	1.33%
HMO, prepaid	1	0.08%	8	0.41%	18	0.54%	28	0.37%	7	0.06%
Home, . . .			11	0.56%	39	1.17%	9	0.12%	83	0.72%

Continued

Table 1 Continued

	1966–1975		1976–1985		1986–1995		1996–2005		2006–2015	
Hospital, inpatient, etc.	76	5.76%	95	4.85%	129	3.88%	135	1.80%	193	1.68%
Improve, improvement	2	0.15%	5	0.26%	4	0.12%	49	0.65%	76	0.66%
Incentives	7	0.53%	1	0.05%	1	0.03%	10	0.13%	22	0.19%
Insurance, insured	8	0.61%	2	0.10%	15	0.45%	46	0.61%	68	0.59%
Managed, management			10	0.51%	15	0.45%	75	1.00%	56	0.49%
Markets			4	0.20%	9	0.27%	33	0.44%	29	0.25%
Medicaid			7	0.36%	9	0.27%	46	0.61%	85	0.74%
Medical	22	1.67%	20	1.02%	29	0.87%	40	0.53%	61	0.53%
Medicare	1	0.08%	5	0.26%	26	0.78%	68	0.91%	112	0.97%
Mortality			3	0.15%	15	0.45%	24	0.32%	36	0.31%
Nurse, nursing	7	0.53%	16	0.82%	31	0.93%	41	0.55%	112	0.97%
Organizational	2	0.15%	25	1.28%	11	0.33%	29	0.39%	37	0.32%
Outcomes			4	0.20%	16	0.48%	52	0.69%	64	0.56%
Outpatient	4	0.30%	2	0.10%	8	0.24%	9	0.12%	18	0.16%
Patient(s)	19	1.44%	13	0.66%	29	0.87%	78	1.04%	178	1.55%
Pay			1	0.05%	20	0.60%	21	0.28%	59	0.51%
Performance	1	0.08%	7	0.36%	9	0.27%	18	0.24%	42	0.37%
Physicians	3	0.23%	9	0.46%	33	0.99%	61	0.81%	82	0.71%
Planning	20	1.52%	8	0.41%	2	0.06%	3	0.04%	3	0.03%
Policy	6	0.45%	11	0.56%	16	0.48%	27	0.36%	57	0.50%
Population, ...	2	0.15%	6	0.31%	7	0.21%	33	0.44%	39	0.34%
Practice(s)	4	0.30%	14	0.72%	16	0.48%	40	0.53%	56	0.49%
Primary	1	0.08%	8	0.41%	8	0.24%	37	0.49%	54	0.47%
Program	9	0.68%	9	0.46%	17	0.51%	19	0.25%	60	0.52%

Continued

Table 1 *Continued*

	1966-1975		1976-1985		1986-1995		1996-2005		2006-2015	
Provider										
Public	3	0.23%	3	0.15%	9	0.27%	14	0.19%	33	0.29%
Quality	5	0.38%	13	0.66%	2	0.06%	16	0.21%	42	0.37%
Reform...					13	0.30%	81	1.08%	133	1.16%
Region, regionalization	4	0.30%	5	0.26%	1	0.03%	9	0.12%	34	0.30%
Risk...	1	0.08%	2	0.10%	3	0.09%	3	0.04%	9	0.08%
Rural	1	0.08%	2	0.10%	20	0.60%	35	0.47%	33	0.29%
Safety, safety-net					20	0.60%	11	0.15%	11	0.10%
Satisfaction	1	0.08%	4	0.20%			12	0.16%	54	0.47%
Services	43	3.26%	34	1.74%	3	0.09%	15	0.20%	12	0.10%
Severity	2	0.15%	7	0.36%	70	2.11%	100	1.33%	127	1.11%
State	3	0.23%	9	0.46%	10	0.30%	2	0.03%	3	0.03%
Staff, staffing	1	0.08%	10	0.51%	11	0.33%	30	0.40%	94	0.82%
Surgery, surgical	1	0.08%	11	0.56%	2	0.06%	8	0.11%	25	0.22%
System(s)	14	1.06%	19	0.97%	9	0.27%	13	0.17%	44	0.38%
Uninsured					19	0.57%	41	0.55%	37	0.32%
Utilization	11	0.83%	11	0.56%	3	0.09%	11	0.15%	23	0.20%
Value, values			1	0.05%	27	0.81%	40	0.53%	51	0.44%
Variation	5	0.38%	1	0.05%	1	0.03%	5	0.07%	21	0.18%
Veterans					12	0.36%	23	0.31%	33	0.29%
Volume, volume-outcome					6	0.18%	13	0.17%	20	0.17%
Women, women's					5	0.15%	4	0.05%	13	0.11%
Work...	8	0.61%	2	0.10%	4	0.12%	12	0.16%	14	0.12%
					5	0.15%	19	0.25%	45	0.39%

Continued

Table 1 Continued

	1966-1975	1976-1985	1986-1995	1996-2005	2006-2015
<i>How We Study Things</i>					
States and nations	9	13	29	73	125
Analysis, analyzing	15	21	27	30	49
Associations		5	7	16	34
Cases, case-mix, etc.	3	10	19	25	34
Cause, causal	2	4	1	2	7
Claims		1	1	11	17
Classification	8	4	3	4	1
Comparative, comparison	2	16	12	33	53
Data, databases	2	3	9	50	85
Differences	3	6	12	20	33
Estimates, estimating	2	10	6	12	38
Evaluation	15	11	23	19	30
Examination	2	2	2	9	17
Geo...			5		15
Index	10	17	8	1	1
Measure, measurement	13	21	13	62	83
Methods	12	8	13	23	49
Models	20	28	24	22	37
Patterns			12	15	5
Qualitative	1			10	5
Quant...	3	1		2	5
Random...	1		6	8	12

Continued

Table 1 *Continued*

	1966-1975		1976-1985		1986-1995		1996-2005		2006-2015	
Research	26	1.97%	26	1.33%	47	1.41%	85	1.13%	103	0.90%
Simulation	10	0.76%	1	0.05%			1	0.01%	5	0.04%
Survey	3	0.23%	11	0.56%	3	0.09%	39	0.52%	60	0.52%
Trials					4	0.12%	8	0.11%	11	0.10%
Validation, validity			5	0.26%	4	0.12%	9	0.12%	17	0.15%
<i>Words We Use and Don't Use</i>										
Approach, approaches	13	0.99%	6	0.31%	7	0.21%	18	0.24%	30	0.26%
Assess, assessments	4	0.30%	9	0.46%	17	0.51%	40	0.53%	41	0.36%
Designs, designing	12	0.91%	2	0.10%	4	0.12%	4	0.05%	9	0.08%
Determine, determinants	4	0.30%	7	0.36%	13	0.39%	17	0.23%	2	0.02%
Effect, effects	5	0.38%	9	0.46%	38	1.14%	81	1.08%	106	0.92%
Factors	3	0.23%	5	0.26%	18	0.54%	24	0.32%	23	0.20%
Impact(s)					14	0.42%	52	0.69%	95	0.83%
Predict, predictors	8	0.61%	5	0.26%	12	0.36%	16	0.21%	18	0.16%
Relationship(s)			5	0.26%	12	0.36%	16	0.21%	36	0.31%
Words	1,319	100.00%	1,958	100.00%	3,325	100.00%	7,493	100.00%	11,492	100.00%
Articles/average	233	5.66	302	6.48	429	7.75	908	8.25	1269	9.06

several patterns are worth highlighting. “Hospital, Inpatient, and closely related terms” accounted for 5.76 percent of title words in 1966–1975, but only 1.68 percent in our last decade. There was a partially offsetting increase in the use of “Care” and “Healthcare,” consistent with a real-world shift to care in outpatient settings, although “Outpatient” was not used very frequently. While speculative, it is plausible that the focus shifted to understanding how hospitals work. “Nurse” and “Nursing” increased somewhat in usage, as did “Staffing” and “Workforce (including “Manpower,” used only in our first decade).

“Cost and costs” increased somewhat over time, as did “Expenditures, expenses,” but less than what one would expect given the focus in the lay media, and “Utilization” fell in frequency. The terms “Quality,” “Outcomes,” and “Improvement” all increased in frequency over the half-century.

The use of the terms “Insured or insurance” remained relatively constant. The term “Uninsured” first appeared in our third decade and increased only somewhat over time. Likewise, “Disparity or disparities” first appeared in our fourth decade, but accounted for 0.57 percent of the title words by 2006–2015. Focusing more broadly, “Disparities” as well as “Equity/inequity,” “Low-income, poor,” “Ethnicity, race,” and “Hispanic, Latino,” accounted for 1.44 percent of the title words by the end of the period, versus hardly any at the beginning.

Another substantial shift can be seen in an increased clinical focus. Accumulating all the references to specific diseases and conditions, those terms accounted for 1.44 percent of title words in our first decade, but hovered around 3–4 percent in the last three decades. Buried within these data are a sharp rise and subsequent fall in titles referring to HIV and AIDS. There were no titles using the words “Drugs, Pharmaceuticals, or Prescribing” in our first decade, but they accounted for 0.81 percent of the words by the most recent period.

Some changes clearly reflect policy trends. Both “Medicare” and “Medicaid” increased from near zero in our first decade to 0.97 and 0.74 percent, respectively, by the end of the period. In contrast, “Planning” accounted for 1.52 percent of the words in 1966–1975, but only 0.03 percent in 2006–2015. Likewise, “Systems” decreased in popularity over the period. “HMOs and Prepaid” rose from 0.08 percent in 1966–1975 to 0.54 percent in 1986–1995 and then fell to 0.06 percent in the most recent period. (“Managed and Management” also increased and fell somewhat, but they may be used in ways other than “managed care.”) “Policy” as a title word, however, remained roughly constant over the period.

The third section of Table 1 highlights words that give some clues to “How We Study Things,” or at least how we describe what we are doing. Over time, titles seem less likely to be including such words, but the patterns are suggestive. Authors are less likely now than in the earlier decades to have titles including “Analyzing,” “Models,” “Simulation” (with probably some double counting), and “Evaluating” have fallen sharply in their usage. “Index” (0.76 percent) and “Classification” (0.61 percent) went from quite popular down to almost zero. The use of the terms “Survey,” along with “Random” and “Trial” (likely often together), increased over time. It may be a stretch, but authors seem to be using their titles to signal less certainty in their work, as evidenced in the patterns for “Associations,” “Cause, causal,” “Validation, validity,” “Estimates, estimating,” and “Comparative, comparison.” There was a substantial increase in studies of specific states or nations (from 0.68 to 1.09 percent), reflecting a willingness to learn from what some might think are case studies. Not surprisingly, there was a substantial increase in the use of the terms “Data or databases” in titles.

Finally, some terms are difficult to categorize but present some curious patterns. “Designs, designing” went from 0.91 percent of words appearing in 1966–1975 titles to 0.08 percent. Likewise, “Determine, determinants” almost fell out of use, but “Impacts” increased substantially. “Predict, predictors” fell in popularity, but this was roughly offset by “Relationship(s).”

DISCUSSION

Words in titles reflect only roughly the content of the articles, but many HSR authors (and editors) are willing to analyze available data rather than collect, or wait for, the ideal data to address a question. Indeed, perhaps one of the underlying messages of this effort is that over the decades, HSR has presented empirical studies that attempt to shed light on important issues. While HSR is not formally positioned as a “policy” journal, not only has “policy” been a word consistently present in titles, but there is clear evidence that important policy issues were addressed in our journal, albeit with a lag. This may reflect authors’ increasing interest in reaching out to policy makers. Although Medicare and Medicaid were enacted in 1965, even by the end of 1975, only one article had been published in HSR with either term in the title. An important factor in this delay relates to the quantitative nature of our journal; that is, it takes years for data to become available, and doing research takes time, as does the manuscript review and publication process.

As health care shifted from hospitals to ambulatory care, so did the focus of the articles in HSR. Again, there was a lag—data were available on hospitals long before outpatient settings. To some extent, the message here may be that “if you provide data, researchers will come.” But the availability of data merely makes the work easier. *Given the availability of data*, researchers pursue themes they see as important. The marked increase in research on issues of racial, ethnic, and income disparities is a good example. Other examples may be more difficult to discern just from words used in titles, but there is certainly an increased focus on clinical outcomes and the implicit value of various types of clinical care.

The ways our authors do their research have also been changing over time. In the early years, the use of computers was novel enough to warrant mention in a title, and simulation techniques were commonly highlighted. While simulations may still be used, they appear less frequently in titles, and even qualitative studies use computer-based software. On that topic the HSR editors had a sense that qualitative research was increasingly being published in HSR. While that may be the case, the term is not frequently found in titles—but then, neither is “quantitative.”

Titles and, in particular, the specific words in titles, are a blunt tool for assessing the work HSR has published over a half-century. One needs to read the articles and then consider how they were shaped by the times in which they were written, and how they may have shaped our perceptions of what was happening during those times. Nonetheless, titles were rarely if ever “edited” and thus reflect the authors’ attempts to draw readers’ attention to their work—and to appeal to their preferred audience—and so the evolution of titles does have some validity in reflecting what the field saw as new and important in “Health Services Research.”

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