Information prescriptions, 1930–2013: an international history and comprehensive review*

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Objectives: Recently, government agencies in several countries have promoted information prescription programs to increase patients' understanding of their conditions. The practice has a long history and many publications, but no comprehensive literature reviews such as this.

Methods: Using a variety of high-precision and high-recall strategies, the researcher searched two dozen online bibliographic databases, citation databases, and repositories, as well as many print sources, to identify and retrieve documents for review. Of these documents, ninety relevant English-language case reports, research reports, and reviews published from 1930–2013 met the study criteria.

Results: Early to mid-twentieth century reports covered long-standing practices and used no rigorous research methods. The literature since the mid-1990s reports on short-term trial projects, especially of government-sponsored programs in the United States

and United Kingdom. Although the concept of information prescription has been in the literature and practiced for decades, no long-term research studies were found.

Conclusions: Most of the literature is anecdotal concerning small pilot projects. The reports investigate physician, patient, and librarian satisfaction but not changes in patient knowledge or behavior. Many twenty-first century projects emphasize materials and projects from specific government agencies and commercial enterprises.

Implications: While the practice is commonly believed to be a good idea and there are many publications on the subject, few studies provide any evidence of the efficacy of information prescriptions for increased patient knowledge. Well-designed and executed large or long-term studies might produce needed evidence for professional practice.

INTRODUCTION

Recently, various government agencies in the United States, the United Kingdom, and other countries have promoted or sponsored information prescription programs [1]. Physician-ordered reading for patients—sometimes facilitated by a librarian—has a long history. It encompasses many models using different kinds of literature through different media, but all with the stated goal of increasing patients' knowledge and understanding of some aspect of their personal health.

This practice has had many names or been included in many practices, such as bibliotherapy, prescriptions for literature, information therapy, signposting, information prescription, and most recently InfoRx and Ix. These terms have been used in broader and narrower senses, have related to readings in print and online media, and have been applied to different models of delivery. Information prescription differs from patient education in that there is no teacher intervention with objectives and evaluation of learning. It differs from consumer-requested health information service or self-help efforts in that it is initiated by a physician order. One twenty-first century

definition of information prescription is ''the provision of specific evidence-based health information to a specific individual/patient to help him/her understand, manage and control ill health'' [2]. The current study sought reports, research results, and reviews of the practice and reviewed them.

HISTORY

Although there have been admonitions for centuries telling suffering people to read or attend to particular teachings, this study included only available documents published in English in approximately the last eighty years. In his 1930 ''The Prescription of Literature,'' Webb referred to earlier physician practices regarding prescriptions to read and admonishes physicians to advise patients to read to escape from their troubles, as well as to improve their minds and morals [3]. Library science faculty considered bibliotherapy a field of study in the same decade [4]. Perryman, in her excellent *Journal of the Medical Library Association (JMLA)* article, ''Medicus Deus: A Review of Factors Affecting Hospital Library Services to Patients between 1790–1950,'' pointed out that not only were the first hospital libraries for patients (not physicians), but also the patients were often instructed to read specific material [5]. Schneck's 1945 ''A Bibliography on Bibliotherapy and Hospital Libraries'' included 350 citations to publications, 185 of which were published between 1895 and 1929 [6].

In the United States, the Veterans' Administration Hospital Library Service (VAHLS) has a long history

of participating in many kinds of prescribed bibliotherapy for patients in long-term care. Peterson-Delaney wrote about the practice and published bibliographies of literature about bibliotherapy before the middle of the last century [7, 8]. In her day, the VAHLS often maintained separate libraries for patients and physicians with very different collections. At some point, some bibliotherapeutic practice in the VAHLS moved from reading for general edification to reading reliable literature about the patient's condition. In 1959, Morrow and Kinney reported that VAHLS patients were reading ''popular psychiatric and psychological articles and books'' [9]. Moreover, the practice of assigning poetry or fiction reading for self-help continues in some bibliotherapeutic models to this day [10–12].

By the 1990s, some hospital librarians were creating and using their own ''information prescription pads'' for physicians to use to assign a patient reading about the patient's condition. The physician might prescribe a particular topic (on which the librarian would retrieve and deliver documents to the patient) or, less often, a particular publication. The use of such information prescription pads featured prominently in at least two Medical Library Association (MLA) continuing education courses on consumer health information services offered from 1992–1995 by Quist and others. The author, a hospital librarian at the time, took one of those courses and designed an information prescription pad for use in her own institution. A more recent example appears in Schneider's article about information therapy in a VAHLS library [13].

In this century, a number of government agencies in different countries have promoted models and materials for information prescriptions [1]. Gavgani has presented and published papers on information prescription practice in developing countries, especially in India and Iran [14–17].

In 2004, the US National Library of Medicine (NLM), in collaboration with the US National Institutes of Health and the American College of Physicians, created an Information Prescription Program, based on the use of NLM's consumer health information portal, MedlinePlus <http://www.nlm.nih.gov/medlineplus/>. With support from NLM, medical librarians conducted training sessions for physicians, emphasizing the use of a preprinted ''information prescription pad,'' which included the uniform resource locator (URL) for MedlinePlus. NLM also produced a ''Toolkit for Health Sciences Libraries'' to use in promoting the program [1]. The NLM Information Rx toolkit consisted of a box containing a larger and a smaller information prescription pad, a sign advertising MedlinePlus, bookmarks about MedlinePlus, and pocket cards for use as personal health records [18].

In the United Kingdom, the National Health Service (NHS) has promoted similar use of parts of the NHS Choices website <http://www.nhs.uk> [19–21]. In this century, there have also been many pilot programs for information prescription use in the United Kingdom [22–29]. In May of 2013, the NHS began a nationwide ''Books on Prescription'' program, in which general practitioners prescribe specific self-help books for patients with mild to moderate mental health disorders, including panic attacks, anxiety, and depression [11, 12, 27–29]. Based on a Welsh pilot program headed by Frude [27–29], it features a list of thirty self-help books to be made available ''on prescription'' through public libraries. It is supported by the Society of Chief Librarians, the Reading Agency, and the British Library [20, 21].

OBJECTIVES

The purpose of the study reported here was to gather and review English-language literature about the use of information prescriptions by individual physicians for individual patients over the years, as defined above. To identify and retrieve such documents required an exploration of some of the current and historical models and terms for the practice. Publications selected for review included case reports on practices, research studies, and reviews.

The studied reports included the use of both print and online published information sources directly related to the patient's medical condition. (Occasionally they included audiovisual media.) Physician-prescribed readings are intended to be from reliable, authoritative, and current sources, so this study did not include social media sources, blogs, or support groups. It did not include fiction and poetry, nor did it include formal patient instruction, consumer health information services initiated by librarians, or patients' independent information seeking.

Information prescription is personalized, much like a medication prescription. So this study does not include recently developed and heavily advertised automated systems that generate so-called ''mass personalization'' [30]. These emailed ''information prescriptions'' (usually links to the vendor's own documents) are based on data mining of electronic medical records and not on any direct contact with the patient. The email suggests that the prescription has come from the physician when, in reality, it is generated by the system [30–38].

METHODS

Literature retrieval and inclusion criteria

Concurrent cumulative processes of document identification and analysis began in January of 2012 and concluded in January of 2014. Both online and print sources (including bibliographies and references) were used for document identification. Online sources included twenty-five bibliographic databases and journal repositories (Table 1), which were each searched repeatedly at intervals of roughly four months. As noted above, a wide variety of terms are used for this practice, and many of those terms are also used to describe other practices (''faux amis''). Therefore, searching for a comprehensive body of

Table 1
Bibliographic databases and publication repositories searched

Academic Search Complete (via EBSCOhost)
BioMed Central: The Open Access Publisher <http://www.biomedcentral
  .com>
British Nursing Index (via ProQuest)
CINAHL Plus with Full Text (via EBSCOhost)
Dissertation Abstracts (via ProQuest)
Dissertation and Thesis Electronic Library (via Louisiana State University)
Educational Resources Information Center (ERIC) Abstracts (via EBSCOhost)
EMBASE (via ProQuest/Dialog)
Gale Group Health Periodicals Database (via ProQuest/Dialog)
Google Books
Google Scholar
Health Source: Nursing/Academic Edition (via EBSCOhost)
Human Health and Hygiene Abstracts (via CAB Direct)
JSTOR
Library and Information Science Abstracts (LISA) (via ProQuest)
Library, Information Science & Technology Abstracts (via EBSCOhost)
Library Literature & Information Science (via EBSCOhost)
Library Literature & Information Science Retrospective: 1905–1983 (via
  EBCOhost)
MEDLINE (via EBSCOhost)
ProQuest Health and Medical Complete
ProQuest Nursing & Allied Health Source
PubMed
ScienceDirect
Web of Science citation indexes (Science Index, Social Science Index, and
  Arts & Humanities Index)
World Cat (via First Search)

Table 2
Search terms used alone, in singular and plural, and in
various combinations

Bibliotherapy
Books on prescription
Health information prescription
Info scripts
Information prescription
Information services
Information therapy
InfoRx
Ix
Library services
Patient education
Personalized information
Prescribed information
Prescribed reading
Prescription
Prescription for reading
Prescription, non-drug
Reading on prescription
Service user

literature required the use of many different search terms (Table 2), followed by significant hand-screening of search results and retrieved articles for relevancy to the question.

Four methods were used for identifying possible documents for the study: (1) subject and known-item searches of online bibliographic databases, (2) free-text searches of online journal repositories, (3) backward citation searches following references in print or electronic documents, and (4) forward citation searches using citation-tracking databases such as those in Web of Science and Google Scholar. In all cases, the searching strategies varied with the available interface, format, fields, or controlled vocabulary of the resource. The works of writers known to be working on the subject were searched by using the author field in different bibliographic databases or listings in bibliographies and references.

The online bibliographic database searches always included field searching of both controlled vocabulary fields and free-text fields. Thousands of advanced iterative search statements made use of expert techniques, including successive fractions, building blocks, pearl growing, and interactive scanning [39–41]. Known-item searches were used both for bibliographic verification and for pearl growing [39] from records for the same item in different bibliographic databases with different fields and controlled vocabularies. Successive searches sometimes produced records for much older documents that were only recently added to the database. Relevancy of retrieved records depended on what documents had been identified in earlier searches. Thus, a search statement retrieving fifty records might include ten false drops (faux amis), thirty records for documents already in the pool for the study, and only ten additional relevant records. Because different features are

available in different vendors' interfaces, sometimes it was helpful to search the same bibliographic database through two or more different vendor's interfaces.

In general, two different kinds of search strategies were used for each bibliographic database. The first kind was designed for high recall. These were broad strategies using various combinations of relevant record-field controlled vocabulary search terms specific to the individual databases. Although there was a variety of related terms used in the controlled vocabulary thesauruses for the different databases, none had precise controlled vocabulary subject headings for information prescriptions. (The closest was the CINAHL subject heading ''Prescription, non-drug.'') The results of these searches were very large sets requiring significant hand-screening.

The second kind of online search strategy was designed for higher precision. These narrower strategies included relevant character strings representing various names for the practice searched in free-text fields, including titles, abstracts, and publication full text. Often these resulting sets were combined with sets from controlled vocabulary fields for the purpose of disambiguation.

Journal repository searches had to be free text only because of the absence of controlled vocabulary fields. However, depending upon the logical, proximity, and limit features of the search interface, fairly complex search statements were possible.

Since most of the online bibliographic databases and journal repositories did not cover the early years of this study, many possible documents were identified from citation references in retrieved documents. Such citation following, of course, always yields citations to publications older than the document that refers to them. Some of the older print publications also included bibliographies of recommended works. These were often difficult to verify and retrieve, but a few proved useful.

Forward citation tracking, identifying newer documents that cited older major works, required the use

of citation-tracking databases in Web of Science, as well as Google Scholar (which covers a different body of publications than the Web of Science databases).

The most common false drops were records related to publications on information about prescription medications. Articles about ''prescriptive information'' and ''prescribed information'' as used in cellular genomics were excluded [42]. Although important for further study, reports of nursing and other allied health information prescriptions were also excluded.

Publications using the term ''bibliotherapy'' were included only if they discussed information (1) individually prescribed by a physician or physician-librarian team and (2) related directly to a particular patient's medical condition. (Thus, much of the October 1962 *Library Trends* special issue on bibliotherapy was excluded.) Literature using the term ''bibliotherapy'' was not included if it referred to recreational reading, reading intended to distract the patient from thinking about a condition, or reading intended for moral, social, or intellectual improvement. Reports and research were not included if they dealt with bibliotherapy in schools to help children, bibliotherapeutic group discussions, library readers' advisory services, and self-help without a physician order. Brief news reports, product promotional pieces, editorials, and advocacy articles were also excluded.

For records and citations that appeared to represent reports and research that might be on the subject, the full text was retrieved for screening. Unpublished manuscripts on the subject were solicited at professional meetings and on various email discussion lists. These were screened with the same criteria. Those published during the course of this research were cited in their published form.

Literature analysis

Analysis followed principles set forth in the fourth edition of Cooper's *Research Synthesis and Meta-Analysis* [43]. EndNote was used for bibliographic control, and multiple Excel spreadsheets were used for analyzing different facets of the literature, including document type (case report, research, or review), publication date, roles for librarians, institutions, systems, specified sources, research questions, methods, and results, as well as other interesting features.

FINDINGS

From approximately 250 related documents, 90 (30 case reports, 41 research reports, and 19 reviews) met the criteria for this review (see above) and were selected for analysis (Table 3). They described projects, practices, and research over 83 years in a dozen countries. A third of them referred to the use of information prescriptions only for mental disorders. Librarian involvement was mentioned in half of them, and public libraries showed up only in the 21st century documents.

The practice of physician-prescribed reading for patients has a long history. How such prescriptions

Table 3
Document types by publication date

	Case report	Research reports	Reviews	Total
1930–1939	4	0	0	4
1940–1949	2	0	1	3
1950–1959	5	1	3	9
1960–1969	3	0	4	7
1970–1979	0	0	0	0
1980–1989	0	0	0	0
1990–1999	0	2	1	3
2000–2009	15	12	6	33
2010–2013	1	26	4	31
Total	30	41	19	90

are ordered may not have changed much. What is prescribed has changed in that physicians now order online sources as well as print sources and more evidence-based material is available. NLM has emphasized its web portal MedlinePlus as a source, while the UK NHS has emphasized the print Books on Prescription plan in public libraries. The latter, like many other projects (including those in the VAHLS), emphasizes its use for mental disorders. Many other information prescription programs are independent of these three large ones.

Chronology

Early twentieth-century literature (1930–1959) reported on long-standing practices of information prescription but used no currently accepted rigorous research methods [3, 7, 8, 44–52]. These reports tended to start with references to ancient examples of instructions to patients to read, and some included reading for general edification. Kennedy stated that ''a public library is to educate, while the hospital library…[is to] help people get well'' [44]. The first research study found was published in 1959 [9], and from then on, the literature held a mixture of case reports, research, and calls for research [53]. Bibliographies and reviews of related bibliotherapeutic practices were found with publication dates from 1945–1962 [6, 8, 54–58], and almost all other reviews were published in this century.

There was a significant drop in the amount of publication of any kind on the topic from 1967 until 1995 (Table 3), possibly because of information professionals' rising interest in consumer health information services for people seeking health information on their own, rather than on orders from a health care provider. More recent literature tended to be ahistorical, and some writers even implied that it was impossible to assign reading to patients before the invention of the Internet and the World Wide Web [19, 32, 37, 38, 59–70].

Case reports, 1936–1965

Within the larger field of bibliotherapy, the fourteen case reports from 1936–1965 included books prescribed by physicians for patient reading. All included specialized librarian mediation in the context of a

hospital library [44, 46, 47, 49–52, 71, 72]. The patients described were in long-term care, and some were in US VAHLS hospitals [7–9, 13, 47, 57, 71]. Mental health and psychiatric disorders were prominent in some reports [7, 44, 47, 49, 51, 52]. A few included the use of other media, such as recordings, pamphlets, scrapbooks, and View-Masters [50, 71].

Librarian Kinney, writing in 1946, stated that ''a thorough knowledge of psychology, psychiatric techniques of scientific method and interpretation of data combined with a wide knowledge of books is needed so that although the specific book will be selected by the doctor, the librarian can be called upon to suggest the type of books for his use.'' She lamented that ''An examination of various articles written by hospital librarians and psychiatrists reveals that little scientific investigation has been made. Hospital librarians limit their observations to a few cases in which the patient comments upon how much good the book has done him'' [47].

Briggs, a physician and professor of medicine, described in ''Adverse Effects from Bibliotherapy'' his concern that reading prescribed information might cause insecurity and apprehension, as in the case where a diabetic patient encounters differing caloric values for the same food in different pamphlets [72]. Gavgani and Shiramin reported physicians' perceptions of similar adverse effects almost fifty years later [2].

Case reports, 2001–2013

A wide variety of programs were in the twenty-one recent reports, although many programs followed the lead of the NLM and the UK NHS. NLM's major promotion of information prescriptions for pages in its MedlinePlus consumer health information portal resulted in widespread implementation in the United States [1]. A pilot project in five regions of the state of Virginia [73, 74] made heavy use of the ''Librarian's Tool Kit'' provided by NLM [18, 73]. Ashmore reported on its use in public libraries [75].

Meanwhile, in the United Kingdom, books on prescription practices were developing. In general, most are self-help books that the physician would instruct the patient to read. In Wales, Frude developed and implemented such a practice for mental disorders, which the government adopted for all of Wales in 2005 [27–29]. Other services were implemented in England and Scotland [25, 26, 76–79], with the NHS rolling out a nationwide books on prescription program in 2013 [31, 65]. In that program, public libraries maintain a collection of thirty self-help books on mild to moderate mental disorders for which primary care physicians would write book prescriptions.

In the Vanderbilt University Medical Center in Tennessee, librarians at the Eskind Biomedical Library developed a Patient Informatics Consult Service (PICS), which featured the use of information prescription forms for clinicians to use to refer their patients to the service. PICS provided information

packets and pathfinders [80]. Schneider described how confusion resulting from oral referrals led to the adoption of written ''health information request'' prescriptions at the James A. Haley Veteran's Hospital Library [13]. That service echoed similar services at other VAHLS libraries in the previous century. The American Heart Association, going beyond the traditional printed pamphlets, developed web-based risk calculators and patient information portals (including HeartHub and HeartRx) to which clinicians can refer patients in some fashion [81].

Research

Morrow and Kinney's 1959 survey of patients was unique in that the VAHLS bibliotherapeutic program had been active for a long time before they surveyed patient reading of lay literature as ''popular psychiatric and psychologic books and articles.'' They compared the responses of a large sample of open-ward psychiatric patients to those of nonpsychiatric patients. Most chose their own reading, some read what librarians recommended, and some read what other caregivers recommended. They found the psychiatric patients expressed ''disappointment as far as tangible benefits of their reading are concerned'' [9].

About half of the research reports (twenty out of forty-one) followed a pattern: some kind of information prescription service was initiated on a small scale, and then usually a convenience sample of providers or users participated in a satisfaction survey, a focus group, or both [2, 14, 16, 17, 22, 61, 67, 68, 79, 82–93]. Most surveyed patient or consumer satisfaction [14, 16, 17, 22, 61, 68, 79, 83–92]. Some surveyed physician satisfaction [1, 61, 67, 84, 89–92] or librarian satisfaction [15, 89, 93]. The sampling methods and questions asked varied widely.

Coberly et al. thoroughly compared email and paper delivery of prescriptions for using NLM's MedlinePlus [85]. Ulmer and Robishaw's study used both physician and patient surveys [92]. A proposal for a study [94] using the Virtual Health portal was presented at a major research meeting but has not been completed, possibly because the portal is still under construction [95]. One study substituted the researcher as ''secret shopper'' for actual patient experience [92]. Another compared the clinical progress of depressed patients with and without an information prescription [96]. One measured public library borrowing rates for specific titles in the Welsh Books on Prescription program [97].

Many of these programs were carefully planned and even innovative. A few used randomized samples with control groups, but response rates were often low. Some simply tracked whether or not the prescription was ''filled.'' Most of the programs in the United Kingdom concerned mental health. All reported high levels of satisfaction, but none took into consideration the Hawthorne effect that can result from an obvious study or the halo effect that can result from introducing something new and different.

A few of the studies published by librarians noted barriers to physician participation [1, 2, 17, 67, 89, 98, 99]. In some cases, researchers inappropriately applied high-level statistical analysis designed for large randomized controlled trials to small convenience samples.

Brewster produced a body of research starting with her master's thesis [11] about public library staff perspectives of the NHS Books on Prescription program [12, 98]. In one theoretical study, she applied actor-network theory (a longitudinal study of how people, ideas, and things are connected) to the Welsh Books on Prescription pilot program. She found that although policy makers and providers saw it as "an evidence-based cost-effective scheme, providing patient choice and reducing inappropriate demand on psychiatric care," what little evidence existed was "applied strategically and carefully selected to ensure it is accepted by all actors" [11]. She also studied online websites recommended for information prescription in the United States and the United Kingdom and found the NHS and NLM sites more comprehensive and easily navigable than many regional sites in the United Kingdom [69].

Other studies of UK programs explored different aspects of information prescriptions for people with mental disorders. Some involved librarian mediation [99, 100], and some did not [101, 102]. Major studies in the US involved a variety of settings, interventions, and patients [63, 64, 102–106]. Gavgani compared librarian-mediated information therapy in hospitals in India and Iran [15].

Reviews

Mid-twentieth century literature reviews of bibliotherapy often included physician-directed reading for specific patients [6, 47, 55–58, 107]. More recent ones reviewed literature about various kinds of physician–patient communication through electronic media [108, 109]. A meta-analysis by Marrs for a 1995 doctoral study of seventy-nine bibliotherapy studies comparing bibliotherapy-augmented psychotherapy with traditional psychotherapy found only a moderate effectiveness for some problems. The report did not discuss how reading was assigned and whether or not there was any librarian mediation [110]. Neville reviewed twenty-first century reports of book prescription programs for mental illness in the United Kingdom and in Dublin City, Ireland [111].

Two systematic reviews published in 2008 were notable. Fanner and Urquhart studied reports on library-mediated assigned readings for UK NHS patients with depression. They also included assigned reading for alcohol dependence, self-harm, panic disorder, sexual dysfunctions, and problems with social skills. They concluded that "the value of reading and education to mental health service users has long been assumed, although most of the reports are descriptive or anecdotal rather than evidence-based" [112]. Chamberlain, Heaps, and Robert reviewed the literature published between 1995 and 2006 on several different types of bibliotherapy and information prescription projects for mental disorders, including Books on Prescription pilot projects. (Not all of these projects included individual information prescriptions.) They noted some similarities in the projects, as well as a variety of practitioner partnerships and delivery methods. While all reported benefits, "In only a limited number of cases were there any qualitative reports on actual improvements to patient health" [113].

In her narrative review "Lost in Translation: Bibliotherapy and Evidence-Based Medicine," Dysart-Gale stated that evidence-based medicine cannot evaluate bibliotherapy because it is based on the practice of quantifying subjective language and experience [114]. Timm and Jones reviewed reports of government-sponsored programs in the United States, the United Kingdom, and other countries in the first five years of the twenty-first century [1]. In "Information Rx: Prescribing Good Consumerism and Responsible Citizenship," Adams and de Bont presented European web-based information prescription programs from both governmental and nongovernmental organizations as "supporting conventional understanding of social norms, such as the role of the medical expert as a primary leader" who encourages patients to be "informed and reflexive consumers" [115]. Huber, Shapiro, and Gillaspy presented a similar analysis from the United States, "Top down versus Bottom up: The Social Construction of the Health Literacy Movement," in which information prescription programs had only "limited success." They concluded, "The movement to improve health literacy rates and develop health communication tools that address all levels of literacy has been fashioned fundamentally from a top-down perspective. This is in contrast to the consumer health information movement, which was forged as a groundswell movement originating primarily from the bottom up" [116].

DISCUSSION

Recent efforts to begin information prescription services are highly commendable, but the research value of what often amounts to small-scale marketing surveys is questionable. Without exception, the literature emphasizes the practice as a way to increase patients' understanding of their own conditions, yet there is no body of research to support or refute this assumption. There are many studies of physician, patient, or librarian satisfaction with a new service, but few that demonstrate improved health as a result of the service. The NHS Books on Prescription plan encourages primary care physicians to refer patients with mild to moderate mental disorders to these books in public libraries instead of referring them to psychologists or to physicians who specialize in mental disorders, thus possibly saving the system some health care expense.

What are some of the limitations of the study? Why is there a publication gap from 1967 to 1995 (Table 3),

almost thirty years? One possibility is that during that period librarians began to provide more consumer health information services for independent information seekers. Another possible reason for the gap may be that some of the bibliographic indexes and repositories searched do not cover that period or cover only part of it. Other publications may be indexed in print indexes published in the United States, the United Kingdom, and other English-speaking countries. Also, some of the case reports and research literature may be biased because the researchers are either sponsored by or employees of a particular agency, publisher, or system.

CONCLUSION

We should not confuse the prescription of "evidence-based information" with an evidence-based information prescription practice. It is possible for the prescription practice not to be "evidence-based," even if the information provided is.

There is a strong and long tradition of health information prescription practice and a general approval of it. The research studies of the practice use a wide variety of data gathering and analysis methods. Some attempt to gather and compile data from diverse models. Many blatantly equate "satisfaction" with adequate learning and behavior change. Few studies—done decades apart and involving different models—measure any improvement in health. Rigorous meta-analysis is impossible with this diverse body of literature. Good studies are needed that provide evidence of the efficacy of information prescription practice in improving health—more than personal satisfaction—if its use is going to be promoted as an evidence-based health care practice.

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