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2008

The information sources and information-seeking behaviors in the field of injury prevention and safety promotion

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back cover

The autor, subject, and title cards held in racks of small drawers provided an index of all documents in a library.
Yale University Sterling Memorial Library card catalog. Photo by Henry M. Trotter, 2005. Provided by Wikimedia Commons.

Developed by Charles Ammi Cutter (1837-1903), the card catalog was a familiar sight to library users for generations. For most libraries, the card catalog has been effectively replaced by computer-based online systems.

The subject catalogue ("Schlagwortkatalog") of the University Library of Graz. Photo by Marcus Gossler 2005. Provided by Wickimedia Commons.

Charles Cutter was among the first to state the objectives of a bibliographic system in his *Rules for a Printed Dictionary Catalog*, 1876. According to Cutter, those objectives were:

1. to enable a person to find a book of which either (Identifying objective) the author,the title or the subject is known.

2. to show what the library has (Collocating objective) by a given author, on a given subject, or in a given kind of literature

3. to assist in the choice of a book (Evaluating objective) as to its edition (bibliographically) or as to its character (literary or topical)

Cover photo: Card catalog in the United Nations Hamersjold Library. Photo by Miapham, 2008. Provided by Wickimedia Commons.

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THE INFORMATION-SEEKING BEHAVIORS OF PROFESSIONALS AND INFORMATION SOURCES IN THE FIELD OF INJURY PREVENTION AND SAFETY PROMOTION

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The Information Seeking Behaviors of Professionals and Information Sources in the Field of Injury Prevention and Safety Promotion

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Lawrence DW. The information-seeking behaviors of professionals & information sources in the field of IPSP
Errata:

Page 1, paragraph 2, lines 5 & 6
The sentence should read: "Upon combining *the* results from the six studies..."

Page 9, line 10: "*authors* scholarly work" should be "*authors'* scholarly work"

Page 13, final paragraph, 3rd and 4th sentences should read: "Those who depend on appearances could miss important information. *The* indexes to early volumes of the American Journal of Public Health (AJPH) included *accidents* and *poisoning* among the categories."

Page 14 - Database History:
Line 2: The word *documents* should be *documents'* (with an apostrophe)
Line 10: The correct spelling of the author's name is *Taube*

Page 15, line 4
Missing space between words: *potentiallyrelevant* should read *potentially relevant*

Page 19 - Colleagues and other experts:
Line 7 after the conjunction *but* the word *may* should be inserted: "but *may* also assist with"

Page 21:
The first full sentence should read: "The non-relevant items, or false drops, are created when items are retrieved *which* meet the syntactic requirements of a query but not the semantic requirements." The sentence should be within quotation marks.

Page 24, Subject Descriptor Searching, paragraph 2, line 7
Missing space between words: *limitedwithin* should read *limited within ...*

Page 27 - Broader Term:
The second sentence should read: "In linguistics the term with this relationship to other words is known as a hypernym -- words whose meaning are *general* instances of more *specific* words."

Page 28, line 7, first word
The words *a new topic* should be substituted for the word *it*.

Page 30, Citation errors..., line 9:
The sentence should read: "However, this same article was cited in an article in the journal Health Education Research with the title, "The Guidelines for Systematic Reviews of Health Promotion and Public Health Interventions Taskforce. *The Challenges of Systematically Reviewing Public Health Interventions*"

Page 33, paragraph 3, lines 8 & 9
The words *annals, bulletin, journal, proceedings, etc* should be enclosed within curved-brackets

Page 35, Informational Literacy, paragraph 4, line 4
The word *this* should instead be the word *instruction*.

Page 43
The second paragraph of the long quotation should not be repeated.

Page 45
In the paragraph beginning with "Sandstrom continues...": The words *the time* should not be repeated.

Page 56 - Ulrich's and WorldCat compared
The first line should read: "Each of the two systems contains information about journals that are *not* included in..."

Page 57, Method, line 8
A straight bracket "[" should be inserted before the word *For*.

Page 59, Method, Paragraph 2
The final sentence of the paragraph should instead be the first sentence of the paragraph.

Page 65, Important concepts..., line 7
The word *then* should instead be the word *the.*

Page 69:
The third line from the end of the page should read: "...articles that were missed *by* a 'pure' MeSH search..."

Page 73, final paragraph
Line 6 should not be empty space. Line 7 should immediately follow what is printed as line 5.

Page 77
Thorpe misspelled Poul Anderson's name when quoting him. The spelling of Anderson's name in the thesis is correct.

Page 79
The first word of line 13, *to*, should be deleted.

ABSTRACT

Injuries are a serious public health problem worldwide. Despite the ubiquity of the World Wide Web and the resources of many different literature databases, the search for information concerning Injury Prevention and Safety Promotion (IPSP) topics is still complicated by several major barriers. IPSP is a multi-disciplinary field, making use of literature from at least 30 widely disparate professions. Each profession uses technical language that may not be fully understood by those in other fields. Each publishes in different journals, and those journals may be indexed in different databases. This thesis draws information from database users and database searches in this multidisciplinary field in an effort clarify the strengths and weaknesses of 1) the searchers query techniques and 2) the content and search systems of their data resources..

Six studies each provide a perspective on the issues involved in finding useful material within the body of scientific knowledge relevant to IPSP. With each of the different perspectives on the information-seeking process, there are gaps in knowledge about the seekers, the bibliographic information resources, and how to access the needed items within the databases.

The first study uses three sources to identify the concepts that are important to the field of IPSP and the terms that label them. An inventory of concepts and terms was gathered from: 1) dictionaries, glossaries, and thesauri; 2) the contents of selected scholarly journals; and 3) the search terms used to query a database of IPSP literature. An abundance of concepts and terms were identified – at least 3500 concepts labeled with almost 11,000 terms.

Three studies (Studies IV, V, and VI) examined the information sources from which IPSP-relevant knowledge may be obtained. Study IV inventoried the scholarly journals that publish IPSP articles and the databases that index them. Study V assessed the usefulness of the controlled search vocabularies of two popular databases (MEDLINE and PsycINFO) for finding articles on key IPSP topics. Study VI examined the contents of four databases to evaluate the breadth of literature available from a single database. There are 597 scholarly journals that publish four or more IPSP relevant articles per year but no literature database includes the contents of all years of all of the 597 journals. The search vocabularies of MEDLINE and PsycINFO are of limited help to finding all articles contained in the databases on five key IPSP topics. When the EMBASE, MEDLINE, PsycINFO, and Web of Science databases are thoroughly searched for articles on five IPSP topics, it was found that the proportion of articles common to all databases was low (5.6% to 16.7%).

Studies II and III looked at the knowledge, skills, and practices of IPSP information-seekers. Study II examined the SafetyLit website logs and found that searchers only use one or two textword terms to search the SafetyLit archive and that, by not using more terms, they miss much of what the database contains on their topic. Study III surveyed subscribers to the weekly SafetyLit Literature Update Bulletin and found that non-librarian searchers rarely used more than one database and that the most-used database was MEDLINE. The non-librarian searchers seldom used query aids and strategies that could improve their results. They had little or no training in searching the databases they used but reported that they were quite satisfied with the results of their searches.

In conclusion, IPSP literature is scattered across multiple established databases, limiting the effectiveness of simple searches using one or two terms and only one database. Unfortunately, surveys showed that these simple searches are the rule in IPSP, suggesting that many projects may be suffering from a lack of complete data on which to base their actions and conclusions.

LIST OF PUBLICATIONS

I. Lawrence, DW, Guard, A, Meier, A, Laflamme, L. Developing the injury prevention and safety promotion thesaurus, international English edition: An interdisciplinary tool for indexing and searching for research literature. Progress report 1. *Safety Science* 2006; 44(4): 279-296.

II. Lawrence, DW (2007). Using online databases to find peer-reviewed journal articles on injury prevention and safety promotion research: A study of textword queries by SafetyLit users. *Injury Prevention* 2007; 13(4): 232-236.

III. Lawrence DW, Laflamme L. Using online databases to find articles on injury prevention and safety promotion topics: How do SafetyLit subscribers use other databases? *Safety Science* 2008; (accepted, doi: 10.1016/j.ssci.2008.01.004).

IV. Lawrence DW, Laflamme L. Using online databases to find journal articles on injury prevention and safety promotion research: Key journals and the databases that index them. *Injury Prevention* 2008; 14(2): 91-95.

V. Lawrence DW. How useful are the controlled search term vocabularies of MEDLINE and PsycINFO for finding articles relevant to injury prevention and safety promotion? The products of librarian-constructed search strategies versus textword searches. Submitted.

VI. Lawrence DW. What is lost when searching only one literature database for articles relevant to injury prevention and safety promotion? *Injury Prevention* 2008; Accepted.

CONTENTS

LIST OF ABBREVIATIONS

IPSP	Injury Prevention and Safety Promotion
IR	Information Retrieval
LIS	Library and Information Science

See also the abbreviations in the listing of databases (Appendix 4).

INTRODUCTION

As the editor of SafetyLit, a free online database of literature pertinent to the field of Injury Prevention and Safety Promotion (IPSP), I became aware of the breadth of professional endeavors involved in IPSP work and the almost 600 scholarly journals carrying relevant articles. (A discussion of injuries as a public health problem is included in Appendix 1.) I began to see the difficulties involved in finding complete information on IPSP topics. Articles useful to IPSP are spread across journals (Appendix 2) that specialize on each of more than 35 distinct professional disciplines (Appendix 3). Access to the contents of these journals requires searching several literature databases. As I built mechanisms to enable SafetyLit readers to find articles that meet their needs, the problems came further into focus. I began to explore the ways in which we search for information and to try to understand the intricacies of literature information systems, indexing and retrieval. These efforts led me to conduct several studies about how IPSP professionals seek information and the barriers they overtly and subtly encounter.

This thesis involves six studies, each of which should provide a perspective on the issues involved in finding useful material within the body of scientific knowledge relevant to IPSP. With each of the different perspectives on the information seeking process, there are gaps in knowledge about the seekers, the bibliographic information resources, and how to access the needed items within the databases. Upon combining results from the six studies I hope to make clear the difficulties involved in gathering information in a multidisciplinary field and to identify ways to improve SafetyLit for its users.

The thesis examines how IPSP professionals seek information in the form of documents from bibliographic databases. While there are many types of documents that may be useful, the focus of this thesis is journal articles, and not the grey literature – agency or research foundation reports, books, conference proceedings, consensus statements, standards, etc. This focus should not suggest that the grey literature is less important, merely that, as I hope to demonstrate, there are many complex and unresolved issues around seeking information from journals. All of these and other issues are likely to apply to the seeking of grey literature. An analysis of these is beyond the scope of the present work. The focus is further restricted to searches for a variety of unknown articles on a topic instead of relatively straight¬forward searches for specific documents known to exist (a construction or practice standard, articles by a specific author, etc.).

My studies seek to explain what IPSP professionals do when they seek information. They do not address why IPSP professionals behave as they do. That said, to place the information seeking behaviors in perspective, it is necessary to include a discussion of what other researchers and theorists have found on these topics – a body of research that does seek to explain and model those behaviors – for example, why information-seekers select some information resources and not others.

The parable of the blind men and the elephant is often quoted to support the idea that we can learn more about something by examining it in several ways and then coordinating those observations. In keeping with not merely accepting quotations without referring to the source (See Hollow References on page 31) here it is:

The Blind Man and the Elephant[1;2]
It was six men of Indostan
To learning much inclined,
Who went to see the Elephant
(Though all of them were blind),
That each by observation
Might satisfy his mind.

The First approached the Elephant,
And happening to fall
Against his broad and sturdy side,
At once began to bawl:
"God bless me! but the Elephant
Is very like a wall!"

The Second, feeling of the tusk,
Cried, "Ho! what have we here?
So very round and smooth and sharp?
To me 'tis mighty clear
This wonder of an Elephant
Is very like a spear!"

The Third approached the animal,
And happening to take
The squirming trunk within his hands,
Thus boldly up and spake:
"I see," quoth he, "the Elephant
Is very like a snake!"

The Fourth reached out an eager hand,
And felt about the knee.
"What most this wondrous beast
is like
Is mighty plain," quoth he;
"Tis clear enough the Elephant
Is very like a tree!"

The Fifth who chanced to touch the ear,
Said: "E'en the blindest man
Can tell what this resembles most;
Deny the fact who can,
This marvel of an Elephant
Is very like a fan!"

The Sixth no sooner had begun
About the beast to grope,
Than, seizing on the swinging tail
That fell within his scope,
"I see," quoth he, "the Elephant
Is very like a rope!"

And so these men of Indostan
Disputed loud and long,
Each in his own opinion
Exceeding stiff and strong,
Though each was partly in the right
And all were in the wrong!

Moral
So oft in theologic wars,
The disputants, I ween,
Rail on in utter ignorance
Of what each other mean,
And prate about an Elephant
Not one of them has seen!

-John Godfrey Saxe (1816-1887)

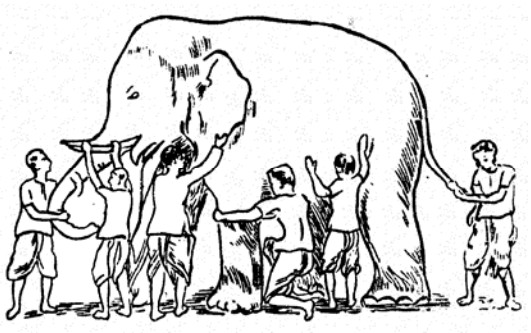


Image from Jain World: http://www.jainworld.com/

In addition to being a parable about the value of using multiple perspectives to understand an issue it is also a warning about how incomplete information can lead to serious misinterpretations. Perhaps each of us is blind to some of the information needed for our decisions. Perhaps that information is available if looked for in the right place or from the right perspective.

BACKGROUND

This background section should establish the foundation for the six studies of the thesis. It has three sections: Information and Understanding, Information Sources, and Information Seeking.

Information and Understanding

As a foundation to discussing information sources or information-seeking, several concepts must be addressed. What is *information*? For information to be useful it must be understood – it must have *meaning* to the information-seeker. This is not meaning in the, "What is the meaning of life" sense nor simply a definitional sense. For information to be useful to a seeker it must be interpreted correctly. An understanding of the meaning of the bits of information is necessary before the information-seeker can make an assessment of the information's *relevance* to the matter being investigated.

Information Sources

There are many potential sources of information: articles in scholarly journals, books, colleagues, newspapers, the World Wide Web, etc. The cumulative quantity of available information is increasing exponentially. This thesis will focus upon one of these sources, scholarly journal articles.

Information Seeking Behavior

There are several models of individual and social behavior that help us to understand how thoroughly an information-seeker will pursue their quest. In essence, these models show that a pursuit of information will involve only the amount of effort necessary to reach a result perceived as sufficient. Any assessment of information sufficiency is made through the filter of what the searcher perceives as normal practice among his or her peers.

There are many methods of information-seeking but these may be classified into two broad categories: browsing and querying. Although the focus of this thesis is upon querying electronic bibliographic databases, examples of each of the information-seeking methods will be briefly discussed both broadly and with their specific application to information seeking in the field of injury prevention and safety promotion (IPSP).

Querying a literature database provides only a handle (the citation and abstract) to enable an information-seeker to find and read documents. Even when things progress as they should, this can be a costly process in terms of effort, time, and money. Sometimes errors in the bibliographic citation can delay the effort to find a desired document. Sometimes the document has been published in a source that is difficult to find. Other times, once found, the cited document does not provide the desired support for the assertions. These kinds of frustrating experiences can affect an information-seekers future search and citation practices.

INFORMATION AND UNDERSTANDING

This subsection will address the nature of information, understanding, and communication.

Information

Knowledge is of two kinds. We know a subject ourselves, or we know where we can find information upon it. Samuel Johnson, quoted by James Boswell [3, p. 143]

Before discussing information seeking, it is necessary to discuss, if only briefly, what information is. There is, alas, no well-accepted, fully satisfactory *definition*, even among information scientists, but there is agreement about what comprises information. Information is represented by sets of symbols that are organized into a structure. The symbols and structure must be understood by those who interpret them.[4] The prominent Library and Information Sciences (LIS) scholar, Michael Buckland wrote that the information we seek may be thought of as tangible entities or "*things* that are informative" or useful to the seeker.[5, p. 359] Looked at in this way, the concept of *information* is closely tied to that of *meaning*.

Meaning, Words, Communication

No word ever has precisely the same meaning twice. Eugene Nida, Toward a Science of Translating[6 p. 48]

If, as is obviously true, each person employs language on the basis of their background and if no two people ever have exactly the same background, then it is also obvious that often, although they may use the same words, the substance of their words will be intended to carry different meaning.[6, p. 51] People reading the same text may interpret it differently.

Take, for example, the sentence, "In 2000, the population of San Diego County was 2.8 million". A lay-person might interpret "population" as including non-residents. A correct interpretation of the sentence requires understanding of the words and their implications in context. In public health we understand the sentence to mean that there were 2.8 million residents of San Diego County (rounded to the nearest 100 000) on census day that year and that tourists and people who work in the county but reside elsewhere are not included. We also recognize that the count has specific limitations inherent to census procedures. That simple sentence carries with it a more specific meaning than the sum of the definitions of the words.

Terminology and Jargon

If a lion could talk, we could not understand him.
Ludwig Wittgenstein, Philosophical Investigations [7, p. 223]

The issues of language and meaning are vital to the study of *information retrieval* because items in a database must be properly labeled or indexed and searchers must use language to request the desired information. A database

user must describe the desired items in terms that both the user and the computer system understand. Language is closely tied to the way in which we understand things, what they are about, and their meaning. When a database contains only precise determinate information, such as names or amounts, there is little ambiguity in data retrieval. However, a problem arises when we attempt to store the intellectual content of written text. Natural language does not necessarily have absolute clarity of expression.[8]

Because of their differing backgrounds, professionals describe concepts in different ways. For example, engineers speak in terms of forces, vectors, and physical laws, while physicians speak in terms of damage to human tissue and trauma outcomes. Although many of the concepts may be similar, professionals from different fields[9] and from the many parts of the world where English is spoken often use different words to describe the same concept. Further, concepts and the terms used to label them evolve over time.

Finding relevant research literature requires knowing the right terms to use when searching numerous electronic and print abstracting services. Experts in one discipline are unlikely to have sufficient fluency in the concepts and terminologies of other disciplines to successfully locate reports by authors in other fields that are related to their interest. The task of learning to use unfamiliar search terms and literature databases is large[10] – so great, in fact, that many professionals may not invest the time and effort necessary to find and read material outside their own discipline.[11-14]

In technical disciplines, important concepts are represented by the specialized terms used to describe them. [15;16] One of the factors that distinguish experts from non-experts is the use of the language of the profession. [17] These central terms are used when searching for information on relevant topics. If the central terms for a concept differ across multiple disciplines, much relevant information may be missed in a search. One indexer may select a subject descriptor term while a second indexer may select another term regardless of what the guidance note in the thesaurus says. Similarly, people visualizing the same concept or topic on which they want information may express what they want in different ways and words.

Thus, researchers may miss relevant, even critical, information in parallel or disparate fields – or even in their own field – which in turn may lead them to recreate information already developed or to miss important connections that could advance each discipline. Policy-makers in public health, public safety, and other fields may retrieve insufficient information to make sound decisions about resource allocation priorities. Decisions that are based upon incomplete information are likely to waste time, work effort, and money – especially if that information is gathered only from a few core journal sources. Poor grounds for decision-making can block effective interventions needed to prevent injuries, disabilities, and deaths. At best, poor decision-making is likely not only to delay implementation of useful projects, but also to diminish the resources available for proper interventions after flawed programs fail.

This issue is of great importance to the field of IPSP because professionals in many disciplines publish reports relevant to IPSP.[18;19] (See Appendix 3.) Each

discipline uses its own jargon and attaches its own interpretations to words that may not seem to be jargon. Even the term *injury* can carry different meanings in other professions – in law an injury does not need to involve physical harm to a person or property.

In the IPSP field, the term *injury* may be defined as damage to the body caused by exposure to environmental energy (kinetic, thermal, chemical, electrical, or radiation) in amounts that exceed the human body's resilience. [20] In epidemiological terms, the agent of injury is exposure to energy from an external source. However, poisoning, drowning, suffocation and exposure to extremes of ambient temperature are also considered injuries because normal body functions can be interrupted by these external exposures. To fit this definition of injury, the exposure should be acute – occurring in a fraction of a second, or at most within a few hours. Damage from longer exposures, such as to low levels of hazardous chemicals or ionizing radiation is usually classified as a disease.

The physical laws relevant to the behavior of energy have been known for hundreds of years. The laws of physics and knowledge of physiology, anatomy, and biomechanics may be used to predict the occurrence and severity of damage due to energy exposures. Scholars in each of these fields publish journal articles that may have application to IPSP. However, unless readers can understand the meaning of an article they cannot make an assessment of the document's *relevance* to their need for information. (See Box for a discussion of relevance when applied to information-seeking.)

RELEVANCE

In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.
Herbert Simon, Designing organizations for an information-rich world. In: Greenberger M, editor, Computers, communication, and the public interest.[21, p. 40-41]

Effective information retrieval (IR) occurs when a searcher is able to evaluate the results as useful and integrate the information into a resolution of the problem.[22-24]

Relevance is:

> The fundamental notion used in bibliographic description and in all types of classifications, ontologies, or categorizations, including those used in contemporary databases, is *aboutness*. The fundamental notion used in information retrieval is *relevance*. It is not about any kind of information but about *relevant* information. Fundamentally, bibliographic description and classification concentrate on describing and categorizing information objects; information retrieval is about that but, and this is a very important 'but,' in addition information retrieval is about searching as well, and searching is about relevance.[25 p. 7]

From the very beginning, relevance has been fundamental to information retrieval. Relevance was tacitly accepted as a given: as the main objective of information retrieval. "The first discussions of relevance in the early 1950s were not about relevance, but about non-relevance or *false drops* – unwanted information retrieved by IR systems."[25 p. 8]

An early recognition of relevance as an underlying notion in IR came in 1955 with a proposal to use the terms *recall* and *relevance* (later renamed *precision*) as measures of retrieval effectiveness.[26] These terns are still

> ***Recall*** *(or sensitivity) is the term for the percentage of the total number of known citations on a topic produced by a search. That total, or gold standard, is difficult to obtain. It is often achieved by hand-searching all of the issues of each of the journals for relevant articles.*
>
> ***Precision*** *(or positive predictive value) measures what percentage of the search results was actually relevant to the query.*
>
> *Search strategies can be constructed to improve precision but only at the expense of recall.*

the standard measures of effectiveness of information retrieval.

An IR system creates relevance – it takes a query, processes it by following some algorithms, and then provides what it considers relevant. People relate and interpret the information to the problem at hand, their cognitive state, and other factors. IR systems match queries to items in their memory so as to return those that are relevant to the user's request. Users take the results and derive what may be relevant to them. Users can read into the search results more than a correspondence between query terms and stored items – that which is relevant to the computer. This is topical relevance.

> Relevance means different things to different people and concepts of relevance may be applied in many ways to many situations. There is no real consensus on how relevance should be formally described[27] or even satisfactorily defined. [28]

Although relevance is elusive and intangible, it is understood intuitively. People use technology to help with their information-seeking because they expect to find relevant information efficiently and effectively.[29]

> Nobody needs to explain to users of information retrieval systems what relevance is, even if they struggle (sometimes in vain) to find relevant stuff. People understand relevance intuitively.[30, p. 215]

The relevance of information search results from the point of view of a database system is based upon topicality or aboutness, but from a user's perspective there are other considerations.[31] Relevance is commonly understood to describe a relationship where one thing has a direct bearing on another. If the common use of relevance is applied to IR, two sources of ambiguity arise. First, what is the basis for determining that the things are related, and second, which things are being related?

Although scholars have written extensively about relevance, except for a consensus that relevance is not simply binary (relevant / not relevant), there is little agreement about how relevance should be defined, and much less about identifying when relevance has been achieved by a user. Different researchers have classified relevance in many different ways and with a variety of multidimensional models.[27;29;32-43]

As information seekers move through levels of information needs, their judgments of information relevance will change as their knowledge and understanding of the issues evolves.[38] Seekers must constantly make relevance judgments about any new material they identify by comparing it to what they already know.[35] When making a decision about including the information in a publication, a scholar must judge whether the information source is the best to include as a citation or reference.

INFORMATION SOURCES

Scholarly Journals

The scholarly (or academic) journal is a peer-reviewed serial publication (or periodical) in which new original research or criticisms of existing research is presented. In contrast, professional or academic publications that are not peer-reviewed are called trade or professional magazines. The publication of the results of research in a scholarly journal is an essential part of the scientific method. Practitioners and researchers rely on scholarly journals to provide reliable, credible information upon which they can build subsequent, related research or policies. It is the peer review process that is the essential element in establishing a journal's credibility. Peer review, the process of subjecting an authors scholarly work to referees who are experts in the same professional discipline, is important as a screening process and to assure academic quality by helping to prevent dissemination of the results of flawed research.

The history of scientific journals dates from the mid-17th century when the Philosophical Transactions of the Royal Society (England) and the Journal des scavans (France) first began providing research results published in regularly issued publications.[44] There has been extraordinary and continuing 3% to 6% compound annual growth in the number of scholarly journal articles since the beginning of the 20th century and there is little indication that this growth is slowing.[45-47] The ability to identify relevant journal articles, or those journals that may contain relevant material depends on their inclusion in bibliographic databases or in the reference lists of reports or articles that appear in other journals.

In the field of library and information services (LIS), a concept known as Bradford's Law of Scattering[48] was developed in the 1930s and has been widely used, among other purposes, to assist in making decisions about what to include in a library's journal collection, how to select journals to be indexed in bibliographies, and how to assess bibliographic coverage.[49-52]

Bradford worried that researchers sometimes pursued their investigations in ignorance of the body of literature on their topic. He believed that scholars who were specialists were likely to be familiar with a few journals specific to their area but not with publications that fell outside their area of expertise – journals that nonetheless contained important information. Thus, he examined the extent to which articles on a given subject occur not only in periodicals devoted to that area, but also in those that are dedicated to entirely different subjects. His investigation revealed that the distribution follows a certain pattern, which he demonstrated theoretically from the principle of the unity of science and practically from examination of actual periodical references. Before formulating his law, Bradford made three hypotheses:

> H 1. Every scientific subject is related, more or less remotely, to every other scientific subject.

> H 2. The articles of interest to a specialist must occur not only in the periodicals specializing on the subject, but also from time to time, in other periodicals, which grow in number as the relation of their fields to that of his subject lessens and the number of articles on the subject in each periodical diminishes.
>
> H 3. The nucleus of periodicals devoted to the given subject, or to the smallest larger subject containing it, must contain individually more articles on that subject than in the periodicals dealing with related subjects.[53, p. 110]

From these hypotheses, he derived his *law*: "... it is possible to arrange periodicals in zones of decreasing productivity, in regard to papers on a given subject, and the numbers of periodicals in each zone will increase as their productivity decreases."[53, p. 111] Or as he put it,

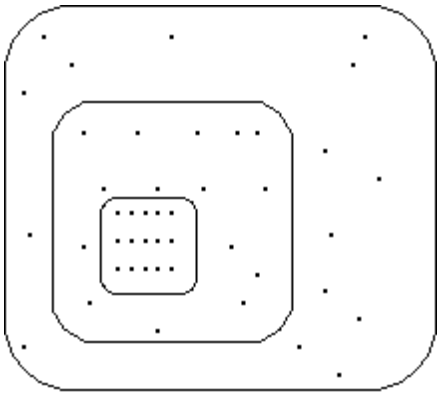
> … if scientific journals are arranged in order of decreasing productivity of articles on the given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject and several groups or zones containing the same number of articles as the nucleus, when the number of periodicals in the nucleus and succeeding zones will be as $1:m:m^2$.[53, p. 116]

Bradford found in his studies that the value of "*m*" was roughly 5 and that the multiplier was approximately the same across zones. Although Rao demonstrated that this was not necessarily the case (because different subjects can have much larger multipliers), Bradford's basic concept remains the basis for decisions about library collections and literature database coverage.[54] Suppose then, that someone conducting an in-depth literature search on a topic finds that six core journals contain one-third of all the relevant articles found. If the value for *m* is indeed 5, then 30 journals (6 × 5) will, among them, contain another third of all of the relevant articles found. Finally, the journal articles in the last third will be the most scattered of all, being spread out over $6 \times 5^2 = 150$ journals. (Figure 1). Fewer and fewer articles appear in the journals that are in the outer zones. Therefore, more sources must be examined to find a similar number of articles, and each outer zone contains more territory but the same number of articles.

The figure shows that a searcher could find many relevant articles on the topic concentrated in a few core journals if they know where to look. Finding the remainder of the relevant articles involves an increasingly more extensive search, as the average yield of articles per additional journal examined becomes smaller and smaller the further out, i.e., the more remotely from the core topic the searcher moves.[55;56]

The effort required to expand beyond the articles in zones 1 and 2 becomes enormous. If it were necessary to search each journal by hand to find articles it would be impossible to find relevant articles. Currently, except in special

Figure 1: *Bradford scatter of journal articles across three zones.*



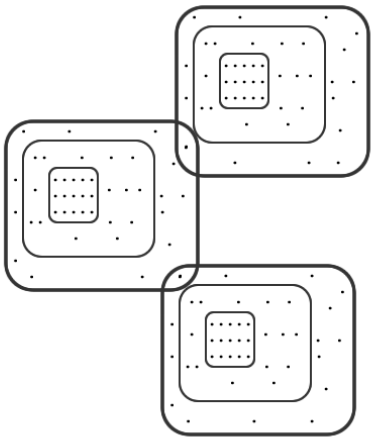
circumstances, searches are not performed by hand but through literature databases. However, if a subject's core journals are not included in the bibliographic database(s) selected for a literature search, much could be lost. Those who maintain each literature database prioritize the journals they select for inclusion based upon citation studies of the journals that are most useful for finding articles on the subjects that are important for the purposes of that specific database.

Bradford was keenly interested in refining the scope of existing abstracting and indexing services. He believed that fewer than half the useful scientific papers published were available in abstracting and indexing services and that "more than half of the useful discoveries and innovations are recorded, only to lie useless and unnoticed on library shelves."[57, p. 146]

In 1981, White cautioned that readers, "may have the prejudice that items published in core journals of a subject are generally superior to those scattered over journals in [outer zones], which is tantamount to believing that journals publishing the most items on a topic also publish the items most worth reading." [58 p. 50] He believed this to be a dangerous misconception. For example, IPSP articles represent only a small proportion of articles published in journals such as BMJ and JAMA but when injury articles are included they are usually very important to the field.[59]

Bradford's first hypothesis, that every scientific subject is related in some way to every other subject, has application to multidisciplinary fields. We know that within the injury prevention and safety promotion field, knowledge is drawn from many disciplines and each of these disciplines has its own set of core journals. A Bradford diagram for IPSP is likely to appear not as Figure 1 but more like Figure 2.

Figure 2. *Bradford diagram for a multidisciplinary field.*



Bradford's law is concerned with the scattering of documents on specific subjects. Yet, although the meaning of the term *subject* (and related terms such as *aboutness*, *topicality*, and *theme*) as applied in subject indexing and knowledge organization, has been written about by library and information scientists for almost 100 years; Bradford never explicitly defined what he meant by "subject".[49]

Bradford believed in limiting the number of subject descriptor terms to 12 (an excessive number, he thought) associated with any journal article, in part, because of the limitations imposed by the rudimentary indexing technology of his time. This is in contrast to present day information retrieval in which any word in a document may be used in a search (text word retrieval), where any or all of an article's references may be used for searching (in citation indices), and where any number of subject descriptor terms may be assigned for use by searchers.[49]

Bernier wrote that subject indices are different from, and can be contrasted with, indices to concepts, topics and words. Subjects are what authors are working and reporting on.[60] An article can have the subject of, for example, *breath alcohol detectors*, if the author wishes to inform concerning their use in traffic enforcement. Reports of studies using these devices as part of the research method to proxy the intoxication level of participants in a driving simulator experiment probably should not have *breath alcohol detectors* assigned as subjects. "Indexers can easily drift into indexing concepts and words rather than subjects, but this is not good indexing."[49, p. 102]

Bernier did not, however, differentiate authors' subjects from those of the information-seeker. The user may want an article about a subject, which is not the subject about which the author intended to write. Nonetheless, the user may find that article relevant. From the point of view of information systems, the subject of a document is related to the questions that the document can answer for the users. Such a distinction between a content-oriented and a request-

oriented approach is described by Soergel.[61] The implication of a request-oriented approach is that subject analyses should predict the questions that the document is going to help to answer.[62] Hjorland suggests that subjects are the epistemological or informative potentials of documents and views the job of the indexer as that of making a prognosis of the most important future applications of the document.[63]

IPSP Journals

Other than reports contained in this thesis, little has been written about the bibliometry of IPSP journals and two of these used SafetyLit as a resource.[64-67] A recent study[59] reported that, during the first half of the 20th century, the number of IPSP-relevant articles was between 20 and 40 per year. In 1950, this number of published articles jumped to 86 – more than double that of any previous year. The annual number of articles has continued to increase each year since then. In 2006 the number was more than 6100. Perhaps more importantly, the number of IPSP-relevant *journals* also increased throughout the 20th century. There were seven journals that published, on average, four or more IPSP articles per year during the decade 1900-1910. This number increased each year so that by 2006, 563 current journals published at least four IPSP articles per year. These journals and the databases that index them are listed in Appendix 2.

Literature Databases

Her real passion in life was the perfection of a filing system beside which all other filing systems should sink into oblivion. She dreamed of such a system at night.
Agatha Christie, of Miss Lemon in: How Does Your Garden Grow? [68, p. 43]

Indices to published serial literature have existed for more than a century. The first were published in print form and included, among others, the *Index Medicus* (1879)[69]; *Excerpta Medica* (1891)[70]; *Readers' Guide to Periodical Literature* (1901)[71]. These were published several times a year and required a visit to a library in order to use them. There were, in essence, two types of indices – subject- or topic-based ones (such as those mentioned above) in which articles were listed by categories and later, citation indices wherein the included articles were accompanied by a list of other more recent articles that cite the original article.

Some individual journals produced indices of their contents by author and category. The scope of the categories sometimes included concepts that, at face value, appear to be inappropriate. These who depend on appearances could miss important information. In the indexes to early volumes of the American Journal of Public Health (AJPH) included accidents and poisoning among the categories. However, if the category home hygiene was not consulted, many articles about falls, fires, scalds, structural collapse, and other topics would be missed. The actual titles of the articles, except for including the words home hygiene (or in some instances home sanitation) gave no clue to the injury

prevention content. This problem led to the omission of several injury prevention articles from an otherwise complete index-based compilation and review of IPSP material by Les Fisher, archivist for the American Public Health Association (APHA), Injury Control and Emergency Health Services Section. (The review is not publicly available but is on the members-only portion of the APHA website.) These "hygiene" articles were identified by conducting a through hand-search of each issue of the AJPH during data-gathering for a study (originally intended to be the seventh study of this thesis) of the citation patterns of IPSP articles in public health journals.

Database history

Until the mid-1950s, articles received (often a single) subject heading – a standardized short compound phrase describing the documents topic (United States, Infrastructure, Highways, Bridges). A subject heading was a single syntactic expression. In 1951, Mortimer Taube introduced a concept he called "coordinate indexing". Using this method, instead of labeling a document with a single formal heading, it could be indexed with – in this case four – separate concepts to allow better search flexibility. The pre-formed, multi-concept syntactic statement became known as pre-coordination and the use of a set of several single-concept terms combined in a way to suit the searcher became known as post-coordination. Taub's methods were applied to index cards labeled with the concept term and with listings of numbers that served as identity codes for each of the documents that had been labeled with the term. This method facilitated the manual viewing of the cards to identify common documents.[72]

A different type of card-based system was introduced by Calvin Mooers. The document name was the card's label and a series of holes or notches in the cards by their position represented each applied descriptor. This was Mooers term for the indexed concept(s). This system allowed for mechanically-aided document searching.[4] *By inserting or removing rods or "needles" through the gaps, cards corresponding to the descriptor subject would drop to the surface of the work-table. Any cards that fell but did not correspond to the subject were called false drops – a term that is still used today for non-relevant articles returned from a database query.*

Before the 1970s, much effort was required to compile a list of potentially useful references. It was necessary to examine several of the volumes of each printed index because a cumulative edition was typically published only once a year and then it might only contain articles published during that year. Articles were indexed under very broad terms and abstracts were not included. A focused search using Boolean terms (and, or, not) that combined multiple index categories was unimaginable. Thus, it was necessary to review many articles to identify those that were relevant. Decisions concerning relevance were probably based upon the title or

author of the article. This was, in part, because forming a list of potentially relevant titles was labor intensive since it required meticulously hand-copying each citation to a list or to a deck of index cards. Every potentiallyrelevant article had to be assessed by finding and reading a printed-copy of the article. This often required traveling to more than one library because nearby libraries might not contain the volume of the journal needed. If the search had to be conducted during the first months of a new year, the previous year's journal issues were likely to be unavailable anywhere because all libraries had sent their copies to a bindery.

As the number of publications and the scale of their contents increased, print-based indices became more cumbersome to use and to produce. In the 1960s index publishers began to add their contents to centralized computer databases. Bibliographic information was contained on reels of magnetic tape and searches could be performed from a distance. These searches were conducted from "dumb terminals" via telephone lines. Until the late 1980s, searches were priced by the minutes connected online; the moments of computer time required; the number of search terms and Boolean operations; and handling charges if the data tapes needed to be changed. Searching required planning and preparation to avoid unnecessary charges. This included spending time examining printed thesauri for the best descriptors and calculating the best use of Boolean operators and other commands to minimize the use of "computer time". Searching was stressful – even for experienced librarians.[(73, p. 49)]

Until the early 1990s, studies of the information-seeking behavior of practitioners, scholars, and scientists showed that, although experts often read journals, they did not commonly use online or print bibliographic databases.[(74-77)] *Instead, if they wanted to investigate an area with which they were unfamiliar, they would contact colleagues and request information about key citations or important authors in the field.*[(78)] *Experts usually frowned upon those who performed subject searches of literature indices and databases because, they believed, those resources were for students who were unfamiliar with the names of the key researchers in the field.*[(75;79)]

By the last decade of the 20th century, with personal computers becoming common, the search systems of many databases were made available through the Internet and a graphic user interface (GUI) was added. A basic search using a GUI appeared to be a simple fill-in-the-screen-form process.[(80-82)] *By the beginning of the 21st century, the use of online bibliographic databases had become more common and this trend has continued* [(77;83-85)] *but the pace of the expansion has differed somewhat depending upon the professional discipline or the setting in which the information-seeker works. For instance, scholars in academic settings use online literature databases much more frequently than health and social services practitioners or engineers.*[(86-89;89-94)]

What can a searcher expect to find in a literature database and how can knowing help with finding items the database contains? Ideally, the information contained in a database is entered in a way that is standardized within the database – even better if it is standardized across most literature databases. Such a standard exists. The Dublin Core Metadata Element Set – named after the location of the first workshop on standards (Dublin, Ohio, USA in 1995) – was created in order to have a minimum set of elements within each bibliographic record and to have guidance concerning the format of the information contained within each element. (This has become an ISO standard (ISO 15836) and is available at: http://dublincore.org/documents/dces/) There are elements related to the content of the item (Title, subject, abstract, language, etc), intellectual property agents (creator/author, publisher), and others (but NOT a standard indexing vocabulary). The Dublin Core Metadata Initiative (DCMI) is an ongoing project.

In essence, when classified by their indexing methods, there are three types of bibliographic databases: 1) those that do not index the documents but allow free text (textword) searching but not index searching; 2) those that index by the subject of the document and also allow textword searching; and 3) those that use citation indexing. In addition, some literature databases (such as Scopus) offer a kind of hybrid subject-citation search process. Appendix 4 lists databases that contain or index IPSP-relevant material.

Databases are an abundant resource for information and from Appendix 4 it is evident that there is an abundance of them. Yet this is as much a problem as it is a benefit. Existing databases use indexing procedures that facilitate searches for documents by those within the fields for whom the database was designed – biomedicine (EMBASE, MEDLINE), education (ERIC, BEI), engineering (Compendex), etc. Although there are many databases, there are no *indexed* databases specifically for the IPSP field. The existing databases lack the index terms and the term hierarchies for accurate and consistent searching for IPSP material. Even when these other databases have vocabulary terms that seem to be useful to IPSP, the way in which the terms are applied can be inadequate for facilitating searches for IPSP-relevant articles. Databases are not intended to meet the needs of any user in general; rather, databases that focus upon other disciplines have terms and hierarchies that facilitate meeting the search needs of information-seekers within particular areas of interest. Those responsible for the databases select journals and articles from journals that aren't included cover-to-cover by specified criteria. Appendix 5 contains examples from three databases of the criteria for journal inclusion. In each case, the criteria contain specific restrictions to the scope of what is acceptable journal content.

INFORMATION-SEEKING

As we know, there are known knowns. There are things we know we know. We also know there are known unknowns. That is to say, we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know. Donald H. Rumsfeld, U.S. State Department press briefing, 12 February 2002[95]

"The information seeking process (ISP) is the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge on a particular problem or topic."[96, p. 1] Knowledge has the quality of being "an integrated assemblage of information received from multiple sources."[4 p. 40]

Information-seeking is a process of sense-making in which a person is actively involved in finding meaning which fits with what he or she already knows.[97] "Information from various sources is incorporated into what is already known through a series of choices. Formal organized sources from information systems interact with informal sources from everyday experiences. The ISP culminates in a new understanding or a solution which may be presented and shared. Evidence of the transformation of information into meaning is present in the products or presentations in which users share their new knowledge with others."[96 p. 1]

A search for information may occur when someone recognizes within her- or him-self a gap in knowledge or a sense of uncertainty.[98;99]

Belkin and his colleagues describe the information-seeking process in terms of an *anomalous state of knowledge*. An information-seeker conducts a search to answer a question or solve a problem. The gap between the user's knowledge of the issue and what s/he needs to know to answer the question or to solve the problem is the information deficit or need. The user's state of knowledge is dynamic – it changes as they progress through the information seeking and gathering process. A key point in that process is when the user realizes a better definition of the problem and can articulate the information gap. The user's ability to articulate requests to the information system should improve. [100-102]

Only in the later stages of information acquisition, after specific gaps in knowledge have been identified, can a user's requests be expressed in the form of queries for specific information.[103] Because even simple questions and problems involve more than one issue, the progress from problems, to questions, to information, and to sense-making comprises not a continuum with clearly demarked boundaries between the stages but rather an intricate interwoven process composed of forward and reverse mental, physical, and perceptual activities, each involving focus, discipline and effort.[104]

Ways of Seeking Information

There are many ways in which a professional may seek information, but these may be distilled into two categories of searching. Taylor, building upon Hildreth, proposed classifying information-seeking methods into two broad categories: browsing and querying.[105;106] Both of these categories can be further subdivided and there often is no clear line that separates them. Although Hildreth and Taylor were writing about information systems design, their scheme is applicable to a broader context (Table 1).

Table 1. *Examples of methods of information-seeking*

Browsing	Querying
Grazing through library book stacks	Database searching by:
Hand-searching journals	- textwords
Examining article reference lists	- subjects
Using published bibliographies	- authors
Viewing journal contents lists	- citations
Consulting colleagues and experts	- related references

Browsing

Browsing is not the focus of this thesis but several issues with browsing methods that are relevant to querying will be briefly discussed here.

Grazing through library book stacks

The books in libraries are shelved by subject and can provide an information-seeker with an advantage over computer performed searches. Browsing through the bookshelves can enable the searcher to discover new and relevant material that could not have been specified and searched for in advance. Shelving-by-subject also allows the browser to find words, terms, and labels that may be useful in some other search method.

The main disadvantage to shelf grazing is that the shelving is arranged by single-subjects but books that pertain to different aspects of the same subject may be shelved in different places. Further, because different document classes are shelved in different areas of a library, it can be possible to overlook anthologies, dissertations, and government reports.

Hand-searching journals

Hand-searching involves examining a journal from cover-to-cover, reading each item until it is clear that relevancy, usually by some specific criteria such as being of a particular trial design, to the purpose of a search has been established. Sometimes known as a *brute force* search this is an extraordinarily labor-intensive way of searching. All articles, editorials, letters, meeting abstracts, etc. are checked. Often, hand-searchers are part of a larger project and have

undergone specialized training in the recognition of relevant material. Hand-searching is an important search method when gathering material for a systematic review. The value of hand-searching is that the method has been shown to identify items that could not be found through textword or index term searches.[107-109]

Review articles and published bibliographies

Review articles and bibliographies, while providing an overview of a topic, can be a rich source of relevant articles and reports. In the case of review articles, there usually has been some quality control through the peer review and editorial process. A published bibliography may contain annotations, but an overview of a topic is typically beyond its scope. While bibliographies that are published in book form will usually include far more document listings than even a large review article, they may not have been written and published with the same quality controls as a review article. Bibliographies are often compiled by scholars who can assess the relevance of the listed documents but this is not always the case. Nonetheless, at the very least, these review articles and published bibliographies – if available on a subject related to the information seeker's area of interest – can be an excellent starting point for further research.

Viewing journal tables of contents

There are print and electronic services that provide listings of the contents of individual journals or of groups of journals. These are useful both for "keeping current" with newly published material and for keeping abreast of new terms for concepts of interest or for subdivisions of those concepts.

Colleagues and other experts

Mann suggests that an important disadvantage of the prevalence of material available in print and retrievable electronically is that scholars "can change their questions to fit whatever information they can find online or in print – even it it's not what they really want – and to diminish the scope of their papers accordingly."[110, p. 185] The value of consulting colleagues and experts arises from their ability to provide information that may not yet exist in print (or exists in an arcane publication) but also assist with insight into how the framing of questions might be improved. By talking to people, an information seeker may gain a good overview of the field of interest, and perhaps, a better understanding of the larger context of the issue.

Querying

Information retrieval

A useful model of information retrieval was developed by the philosopher, Karl Popper, best known in public health for his work in the 1930s related to refutability, the concept of the null hypothesis, and causal inference.[111;112] His importance to information science arises from his three worlds model.[113] In Popper's model, World 1 consists of natural and physical objects; World 2 encompasses the subjective thoughts and knowledge within a human mind; and World 3 contains all objective knowledge generated by humans and recorded

in publications. These worlds interact. Much scientific discovery arises from careful examination of World 1. But, as Swanson proved, it is also possible to synthesize new knowledge from material pulled entirely from within World 3. Problems and their solutions can exist in World 3 before anyone becomes conscious of them – that is, before anything corresponding to an issue appears in World 2. (See Derived Relevance, page 22 and Bradford's theory of scattering, page 9.)

The material in World 3 is largely fragmented. Manfred Kochen ties the growth of published information to disciplinary specialization. He asserted that one of the chief reasons for specialties to arise is when the total body of information expands beyond an individuals capacity to absorb it.(114) Kochen, while he didn't alter his idea of the association between literature growth and specialization, later wrote that information that is available for the asking from retrieval systems can blur the boundaries to specialties.(115) Information retrieval is concerned with detecting and moving contents from World 3 to World 2.

The term "information retrieval" was coined by Calvin Mooers in 1951. He wrote that information retrieval, "embraces the intellectual aspects of the description of information and its specification for search, and also whatever systems, techniques, or machines that are employed to carry out the operation."(116, p. 25) It involves finding desired information in a store of information or a database – a collection of records in which each record is about something.(4;117) An information retrieval system alone does not change the knowledge level of a user on a subject. It merely informs the user of the existence or absence of documents on a subject and provides an opportunity to find them.(118;119)

The purpose of an information retrieval system is to link the authors of information with the users who desire it.(120) There are, in essence, three components to an information retrieval system: items of information (content subsystem), users' queries (user subsystem), and matching of user queries with the items of information (search/retrieval subsystem). The ideal system collects and organizes information concerning one or more subject areas in a way that will make the right information available to the right user.(100)

Methods of Searching Databases

Textword Searching

Another term for textword searching is keyword (or free text) searching. This type of search involves entering a word or phrase into a query system, resulting in a listing of all items that contain the *exact* word or phrase. Essentially all literature databases may be queried by textword searching. Sometimes, even in a database where the contents have been indexed and searches may be conducted with terms from a controlled vocabulary, searching by textword will have advantages over other methods. For example, a textword search may produce results for items that are relatively esoteric and beyond the focus or scope of the database. Searches for information on a new topic that has not matured sufficiently to have led to the creation of index terms can only be accessed through a textword query. Disadvantages of textword searches include:

receiving only part of the relevant contents of a database unless queries are repeated with each relevant synonym and spelling variant for the concept of interest; items retrieved may contain the word or phrase but are not relevant to the search. The non-relevant items, or *false drops*, are created when items are retrieved meet the syntactic requirements of a query but not the semantic requirements.[121, p. 82]

Search Aids

Boolean Controls
Searching with Boolean controls may be used with any of the several kinds of searching but are commonly associated with textword searching because of the power that they provide.

A search using Boolean controls may use any of three operators: AND, OR, or NOT.

Example: To restrict a search to information about Arrowsmith, the search-aid software (See Derived Relevance, below), and exclude the band named Arrowsmith, and also exclude the author named Sinclair Lewis, who wrote a book titled Arrowsmith; the following search string could be used:
Arrowsmith AND (search OR software) NOT band NOT music NOT Lewis

Proximity Controls
Many databases also allow proximity controls to be used with textword searches. Proximity searching goes beyond the simple matching of words by adding the constraint of proximity. The assumption is that the proximity of the words in a document implies a relationship between the words. Given that authors of documents formulate sentences which contain a single idea, or cluster related ideas within neighboring sentences or organized into paragraphs, there is a high probability within the document structure that words used together are related.
A proximity search looks for documents where two or more separately matching terms occur (or do not occur) within a specified distance, where distance is the number of intermediate words or characters. In addition to proximity, some implementations may also impose a constraint on the word order. Operators like NEAR, NOT NEAR, FOLLOWED BY, NOT FOLLOWED BY, SENTENCE or FAR are used to indicate a proximity-search limit between specified textwords.

These aids are termed post-coordinative search techniques because the searcher combines the concepts to form the query statement.

Although post-coordination searching through the use of Boolean search aids can improve precision or recall, their use does not eliminate the false drop problem. For example, a search for "female alcoholics" in which "female" is combined with "alcoholism" by the Boolean AND will retrieve both wanted documents (such as, "treatment of female alcoholics with psychotherapy") and unwanted ones (such as, "treatment of alcoholism by female doctors"). This last example represents a *false drop*.[122]

Derived relevance: Another kind of textword search

Another type of textword searching is *derived relevance* or discovering previously *undiscovered public knowledge.* Donald Swanson has made a career in LIS by studying the association of published bodies of literature that are logically or substantively related but bibliographically non-interactive.

> *Knowledge can be public, yet undiscovered, if independently created fragments are logically related but never retrieved, brought together, and interpreted…independently created pieces of knowledge can harbor an unseen, unknown, and unintended pattern.*[123, p.103]

Swanson demonstrated that these fragmented bits of information can be connected through a systematic, trial-and-error, process of searching two or more discrete bodies of literature. Through his literature search methods Swanson, a non-expert in biomedicine, demonstrated several hitherto unnoticed associations between bibliographically disparate research findings and, in essence, developed new scientific knowledge. His early work identified previously unconnected associations between dietary fish oil and Raynaud's syndrome, blood magnesium level and migraine headache, and somatomedin C (insulin-like growth factor 1) and the amino acid arginine.[124-126]

In the late 1990s, Swanson and Smalheiser reported on a computer-assisted method of text mining to facilitate the discovery of previously unknown cross-specialty information that, when associated, can further the interests of both fields.[127;128] They called their new software Arrowsmith,[129] presumably after the Sinclair Lewis character in the novel[130] of the same name that chronicles the life of a physician who spent his life in a relentless search for truth. Swanson and Smalheiser decried the problems of specialization and silo-science:

> *The unintended consequence of specialization in science is poor communication across specialties. Information developed in one area of research may be of value in another without anyone becoming aware of the fact.*[127, p. 183]
>
> *Useful information can go unnoticed by anyone… if it can be inferred only by considering together two (or more) separate articles neither of which cites the other and which have no authors in common. The two articles (or two sets of articles) are in that case said to be complementary and interactive…. For example, one article might report an association or link between substance A and some physiological parameter or property B while another reports a relationship concerning a link between B and disease C. If nothing has been published concerning a link between A and C via B, then to bring together the separate articles on A-B and B-C may suggest a novel A-C relationship of scientific interest. There are now about 9 million records in the MEDLINE database, and hence about 4×10^{13} possible pairings of records.*

> *Clearly, the vast majority of record pairs have never been considered together. It is plausible to think that there are many undiscovered implicit relationships within the bio¬medical literature, at least some of which might be important.(128, p. 48-49)*

The Arrowsmith program has identified several connections between therapies and diseases that had never before been explicitly linked in the literature. After further investigation, these derived relevancies were determined to have important clinical value in the prevention or treatment of diseases.[131-135]

It should be noted that Arrowsmith currently works only with a single database (MEDLINE), and extends, but does not replace, conventional database searching; for it requires, as input, the results of a person-generated conventional search.

If a non-expert in biomedicine working in one database can identify causal relationships unnoticed by specialists in the fields involved, one can only imagine the potential for undiscovered knowledge connections in IPSP where information is dispersed across many discipline-specific databases.

Author Name Searching

What's in a name? That which we call a rose
By any other name would smell as sweet.
William Shakespeare, Romeo and Juliet (II, ii, 1-2)

We have come a long way from the attitude in the early 19th century that subject indexing should be avoided because any well-informed professional should be able to find every publication they need through an author-name search. After all, it was argued, any competent professional would know the names of everyone who had contributed to the field.[136]

Names, however, can be confusing to a searcher and to an information system. This can lead to great difficulty when seeking an author's complete works. Authors may change their names, such as upon marriage. There are variants in the spelling of an author's name. These variants may all be in use simultaneously depending upon where a document is published. This is particularly a concern when transliterating the names of authors with names that in their own country of residence would be written in non-Roman characters. The structure of a name can be a problem. The practice of recording an authors' name in a database as LastName (or surname), FirstName (or forename / given name) does not always work well. When one is entering or alphabetizing a name, different cultures that use Roman characters may have different conventions. The "entry" name in Brazil is the last name of a

compound name while in Argentina the entry name is the first name of a compound name. In American English, an author with a compound name may wish to select whether the first or second of the compound names is used. Authors of Iceland are more likely to want their forename used as the entry point because they follow a patronymic naming pattern – the last name is the given name of their father or mother with ‘son’ or ‘dottir’ appended. The issue is further complicated for a searcher when they do not know the correct name format to use in a search. A working group within the Dublin Core initiative, the DMCI Agents Working Group is addressing these concerns. (See: http://dublincore.org/groups/agents/)

However, sometimes author name searching can be the best way to find items in a database. Even when articles are indexed, the descriptor terms may not be assigned as the searcher expects. A recent study of the accessibility of journal articles about alcohol use by automobile drivers reported on an author name search in MEDLINE. Of the 19 articles found that specifically mentioned "automobile driving" in the title or abstract, only 11 had been assigned the index term (MeSH) *automobile driving*. The other eight articles had been assigned the MeSH term *psychomotor performance* – a term from a completely different hierarchical family.[137;138]

Subject Descriptor Searching

The main difference between textword searching and index term searching is the precision obtained with the former (not always a good thing) and the reduced effort necessary and improvements in predictability, categorization, and quantity that come from the latter.

Subject descriptors (also called nominal descriptors, subject headings, or index terms) are used to describe the content of documents such as journal articles in order to make it easier for searchers to distinguish articles that are on their subject from those that are not. Their use makes composing a query easier for searchers because there are fewer ways to represent a subject in this “language” than in natural language. Typically, subject-describing terms are limitedwithin any database through a defined or “controlled” vocabulary, and both the indexers of records and searchers are expected to use only these terms. That requirement imposes the further requirement that all users learn the vocabulary; otherwise, search results will be unsatisfactory.

Any classification of subject matter must show the degree to which entities are subject related. A common way to do this is through a hierarchical classification system.

Biology, perhaps more so than any other science, makes use of such a classification system for identifying or writing about organisms. All living things constitute a universe to be subdivided into a series of mutually exclusive compartments. Mutually exclusive means that an item, once assigned to one classification, cannot also be assigned to another at the same level of detail; the one assignment precludes all others. While this may be proper in the case of

biology, it does not always work so elegantly in other fields. For example, it is likely that no journal article will be seen by all readers to be about one and only one subject and hence belong to one and only one class.

Controlled vocabularies address the problem of multiple terms that may be used to describe the same concept. Those who create bibliographies select one of many possible terms and associate all of the synonyms, spelling variants, variant phrases, and different-language terms with the chosen term. This single term is used to index all relevant items. Depending upon how a database is designed, a search query using one of the associated synonym terms will 1) present a message suggesting the chosen term or 2) simply display the articles indexed under the standard term. One may think that with modern data systems running on fast computers that the latter would always be the best. However, many times this is not a decision that can be made by an automated system. For example, one of the words used for *infant walkers* is *baby mobiles*. If a query on the term baby mobiles simply produced the stored articles on the topic infant walkers there would be no problem. However, the expression *baby mobiles* is also used to label the cheery kinetic sculptures that may hang in a nursery. Sometimes, a searcher will enter a search term without realizing that the term can refer to more than one concept. It is necessary for the designers of a bibliographic data system to recognize these kinds of conflicts and build in a way to disambiguate the meanings. In this example, the system response to the query, "baby mobile" would result in a screen asking, "Do you mean, *infant walker* (followed by a brief definition) or *dangling mobile* (again followed by a brief definition); to allow the searcher to select the correct topic. Without a controlled vocabulary and proper use of indexing, a searcher could never be certain that the search product was complete. In order to be comprehensive, searches using textwords require knowing all the possible variants that the terms labeling a concept can take. It should be obvious that it is better if the term variations are handled by a controlled vocabulary than for a user to need to know and enter each appropriate textword.

This grouping process extends beyond the collection of synonyms. Controlled vocabulary terms do not stand alone but are placed in a taxonomy or hierarchy by the thesaurus designers. Not only are searchers freed from thinking of unpredictable ranges of textword synonyms to investigate a topic; the use of this structure allows searchers to expand or narrow the focus of their query by moving up or down the term hierarchies. This subject grouping or *collocation* is accomplished through the intellectual work of those who designed and maintain the thesaurus and those indexers who use the thesaurus tool to assign subject descriptors to a simple bibliographic record (in the case of a journal article): article title; author names; journal name; publication year; volume, issue, and page range; and (possibly) an abstract. It is the addition of controlled vocabulary subject descriptors that create these groups of commonalities – articles collocated by the descriptors assigned to them. These data about the article itself are referred to as *metadata*.

This points to a major problem with Internet search engines:

> No matter how sophisticated their relevance-ranking algorithms may be, they are still ranking only the keywords a searcher types in. If those terms are not the best ones in the first place, their mere ranking will not serve to point out the existence of entirely different words. Relevance ranking, in other words, is not the same as categorization and collocation….This is a major difference between [online library catalogs and indexed literature databases] and Internet search engines. The former, constructed on the basis of uniform headings, enable you to recognize, within the retrieved subject set, a whole host of relevant works whose variant keywords you could never have specified in advance. The crucial element of serendipity or recognition on the retrieval end of searches is a direct function of keyword-transcendent categorizations having been created at the input (cataloging) end of the operation. Cataloging is thus not at all the same as merely transcribing existing data from title pages or tables of contents. It is a process of adding terms that are standardized 'on top of,' or in addition to, the words provided by the [document] itself.[139, p. 23]

Hierarchical classification also implies that, when an item has been assigned to a subclass, the item is also automatically identified as being a member of every superordinate, or higher class, in a structure. See Table 2

Table 2. *Biological Classification Hierarchy**

Taxonomy	Example
Kingdom	Animalia
Phylum	Chordata
Subphylum	Vertebrata
Class	Mammalia
Order	Primate
Family	Hominidae
Genus	Homo
Species	Sapiens

* after Meadow, Boyce, Kraft, and Barry(140, p. 77)

When assigning subject descriptor terms to an article it is necessary to translate words through the use of a thesaurus that explicitly states the relationship of one word to another. For example, a document may include the word "baby walker", and a user may search a database with the synonym-term "youpala" while the thesaurus may list the official or *preferred* term to be "infant walker". An ordinary thesaurus lists words with their synonyms and, perhaps their antonyms. A thesaurus intended for use with a bibliographic database is

highly structured, giving for each term all other words that are related in any or a combination of the following ways.

> **Broader Term (BT):** a term that is superordinate to another term in the hierarchy. Transportation is a broader term than Road Transportation or Air Transportation. In linguistics the term with this relationship to other words is known as a hypernym – words whose meaning are specific instances of more general words.(141)
>
> **Narrower Term (NT):** Terms that are subordinate to another term. Air Transportation, Ground Transportation, and Water Transportation are each narrower terms than Transportation. In linguistics, this relationship term is known as a hyponym or a meronym to the word listed as the broader term – words that label a constituent part, a subcategory, or a member of something.(141)
>
> **Related Term (RT):** A term that is similar to or of similar interest to another but is not related hierarchically. Traffic Laws -RT- Law Enforcement Officers
>
> **Use:** Directions that provide the searcher with the preferred term for a subject. If the searcher looks for "baby walker" in the thesaurus s/he will be directed to use the preferred term "infant walker"
>
> **Used For (UF):** Terms that are synonyms to the preferred term
>
> The preferred terms in a thesaurus will usually contain ***scope notes*** to be used as a guide to the indexer or searcher concerning the term. Scope notes typically include a formal definition of the term in the context of the thesaurus and decision rules to direct the selection of this term as opposed to other terms that potentially could be selected.

Using a controlled vocabulary's "collocation" function (Use / Used For) allows a searcher to save the time and trouble that would be needed to conduct a series of searches using a variety of terms for material on one subject. The controlled hierarchical and associative functions of a controlled vocabulary (BT, NT, and RT) provide access to other related topics.

The disadvantages to a controlled vocabulary system include:

- Distinctions that are important to searchers of a discipline outside the scope or focus of the database may not have been recognized as important by the thesaurus designers.
- The collocation and associative properties of a controlled vocabulary can blur fine distinctions between or among subjects that are within the scope of the database. This problem may have a greater affect upon users from a discipline that is outside the focus of the database.

- Updates and additions to a controlled vocabulary occur infrequently. The reason for this is that a cataloger cannot simply insert a new term into the thesaurus without integrating it with the existing terms and into the existing associations and cross-references that must link the new term *to* others and to the new term *from* others. It is normal for thesaurus professionals to wait until there are enough publications about it so that its associations with other terms and placement in hierarchy can match the subtleties of relevance needed by searchers. If an article concerns a recent development or a new field an appropriate new subject descriptor may not yet have been added.
- Indexers may not always follow the rules of indexing or may capture only a portion of the topics contained in an article. This would make the article undiscoverable by searchers who use the missing or misapplied index terms in their queries.

Citation Searching

Scholars have listed at least 25 distinct reasons for an author to cite other authors' work[142-145] – far too many to detail here. Library and information systems researchers and others have engaged in a lively debate about what the patterns of citation reveal about an author or mean for the sociology of scientific disciplines.[146-150] However, an author cannot cite other authors' work unless they can find it. Citations have value. The worth of faculty members to a university or to the scientific community has long been measured, in part, by the number of papers each has published, and the number and quality of citations each paper has received.[151-154] Citation patterns have been used to map the structure of science and the inter-relatedness of scientific disciplines.[155;156] Citation patterns are used to rank the quality or "impact" of journals.[157;158]

One of the ways that people seek information is by *citation-chaining*. Ellis has described two ways in which this can be done: *backward chaining* also called *ancestry searching* – following up references or sources cited in material consulted and *forward chaining* – identifying citations to material consulted or known.[78] In practice, backward chaining involves selecting citations from the reference list of a useful seed-article and then obtaining printed copies of the articles selected from the seed (and, perhaps, repeating the process using the reference lists of the articles in the second generation set). Forward chaining requires the use of a citation index – a bibliographic database using, instead of a subject index, an index of citations between publications. A citation index allows the searcher to determine which later documents cite which earlier documents.

> In citation searching you must start with a known source that is relevant to your topic….a citation search will tell you whether someone has written a subsequent scholarly journal article that cites your source…the assumption is that a later work which cites an earlier one is probably [on the same] subject.[159, p. 120]

Problems with citation searching

I have said it thrice: What I tell you three times is true.
Lewis Carroll, The hunting of the Snark: An agony in eight fits.[160, p. 3]

There is one very important point about citations: they are often wrong. This problem can not only affect the bibliometric impact of an article; it can make it difficult or impossible to retrieve an incorrectly cited reference.

If the seed article for a citation search contains errors in its reference list it may be impossible to find the cited articles and obtain copies. The error can also block the connection between the citing article and the original, resulting in the citing article not appearing with the cited article's listing in a citation index.

To the question, "How widespread is this problem?" – The answer is: very widespread. Of the 410 items cited in this thesis, 156 were identified by backward chaining from the reference lists of several articles published in LIS-focused journals. Of these, 34 (21.8%) had errors – there were errors in the name of the first author, title, journal name (or abbreviation), year, volume or page numbers. In 16 cases (10.3%) the errors were severe (Table 3). Although it was eventually possible to locate the article (sometimes because another seed article listed the citation correctly), it was necessary to spend extra time guessing the correct information so that the paper could be obtained. In seven additional cases (five articles) there were citations to journals that after a thorough search did not seem to exist. (It is possible that further searching might have identified these journals. Thus, to avoid any unwarranted labeling of innocent authors that would justify an accusation that this thesis contains calumny; the unfound articles will not be listed here.) Although the proportion of errors seems high for journals in the LIS field, it is a lower proportion than the 29% error value that was reported for LIS journals in a 1993 report.[161]

Table 3. *Severe citation errors found in LIS journals consulted for writing this Background Section*

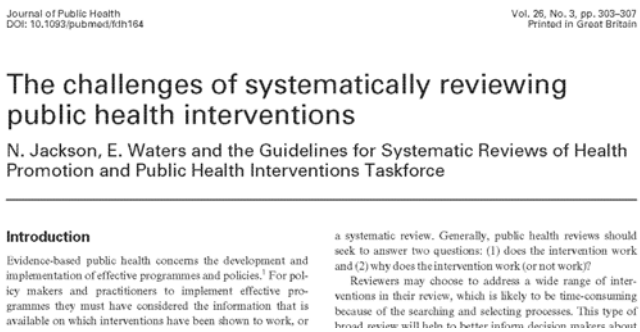
Severe Errors	Number
Wrong journal	6
Wrong year & wrong volume	5
Wrong first page number	4
Multiple errors	1

Citation errors and finding journal articles

Even seemingly minor errors such as a single misplaced punctuation mark could have a major influence upon finding cited articles. For example, one of the difficult-to-find citations was from an article concerning the identification of reports containing evidence to include in a systematic review.[162] The reference list of this article includes an article by Jackson ,Waters, and the Guidelines for Systematic Reviews of Health Promotion and Public Health Interventions Taskforce in the *Journal of Epidemiology and Community Health* correctly titled, "The challenges of systematically reviewing public health interventions."[163] However, this same article was cited in an article[164] in *Health Education Research* as, "The Guidelines for Systematic Reviews of Health Promotion and Public Health Interventions Taskforce. Guidelines for Systematic Reviews of Health Promotion and Public Health Interventions." The *Health Education Research* article erroneously included the authors' work-group as the first element of a two-phrase title. The correct title is clear from the first page of the article, however it is also easy to see that a single punctuation error during the editing process – a comma vs. a period – in the author portion of the citation could have caused this problem.

Jackson N, Waters E, Guidelines for systematic reviews of public health interventions taskforce. The challenges of systematically reviewing public health interventions. *J Public Health* 2004;26:303-7.

Jackson N, Waters E. Guidelines for systematic reviews of public health interventions taskforce. The challenges of systematically reviewing public health interventions. *J Public Health* 2004;26:303-7.



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The challenges of systematically reviewing public health interventions

N. Jackson, E. Waters and the Guidelines for Systematic Reviews of Health Promotion and Public Health Interventions Taskforce

Introduction

Evidence-based public health concerns the development and implementation of effective programmes and policies.[1] For policy makers and practitioners to implement effective programmes they must have considered the information that is available on which interventions have been shown to work, or a systematic review. Generally, public health reviews should seek to answer two questions: (1) does the intervention work and (2) why does the intervention work (or not work)?

Reviewers may choose to address a wide range of interventions in their review, which is likely to be time-consuming because of the searching and selecting processes. This type of broad review will help to better inform decision makers about

From the theory of least effort it could be concluded that when the full text of an item is difficult to obtain it is less likely to be read. Efforts to improve the accessibility of source documents through systems such as the document online identifier (doi) may help but not all publishers use this system, those that do may not provide a doi in the data they make available to download into bibliographic software, and not all bibliographic software is equipped to handle the doi. (See: Obtaining journal articles, below)

In an effort to compare the 21.8% error proportion with what has been reported elsewhere, a search of several literature databases was conducted. This search identified 42 articles that assessed the errors in scholarly journals from many fields. These reports found errors in between 5% and 68% (median value 32%) of the citations in the investigated journals.[161;165-206]

Hollow References

A further problem with citation errors is that they can be compounded by a practice of questionable ethics by authors who cite articles that they have not read. Morrisey terms these "hollow references" or "hollow citations".

> How does one know this practice occurs? One way is when an inaccurate reference shows up in a citation index with more than one reference citing it, the odds are that the second and following citing authors took the inaccurate reference from the first citing article's bibliography and not from the article itself. Not only does this corrupt the citation database, but also it brings up issues of what some see as potential misconduct…[207, p. 154]

When an author, to support a statement, cites an article they have not read, and the cited article doesn't support the statement; serious harm could result. If another author uses that misleading citation (without reading and understanding the original work) the problem is compounded. When a falsehood is repeated enough times it can begin to seem like the truth.

From bibliographic information on 12 frequently-cited papers they found in the Thomson-ISI citation databases, Simkin and Roychowdhury estimated the percentage of people who actually read the papers they cite.[208-212] They reported that most of the errors in citing an article were identical. After running their findings through several models and simulations, they estimate that as many as 80% of citers had not read the original papers. It would seem, however that their model has flaws. Simkin and Roychowdhury assumed,

1. That any duplication of a citation is likely due to copying because the probability of making identical random errors in typing a citation is infinitesimal;
2. Authors hand-enter each citation they use; and
3. That authors gather their own papers and any error in a citation would be noticed because it would make finding the paper difficult.

There are problems with each of these assumptions:

1. Clearly, entering information on a keyboard involves issues of human factors and some errors are more likely than others (entering a "2" instead of a "1" is more likely than entering a "9" for a "1").

2. Many authors use bibliographic management software to manage their citations. One of the chief advantages of this software is that citations may be downloaded directly from databases compiled by publishers or by other institutions. Errors in the source would be transferred to the downloading author's database.
3. An unknown proportion of authors assign the task of obtaining articles to subordinates or their students. Only if a citation contains a very significant error will the paper be really troublesome to find. Simple errors, such as a spelling error in the name of an author other than the first, or an error in the ending page number, may never be noticed.

That said, it is likely that some proportion of citations are to papers that the author has not read.

Other authors assessed whether the accurately cited references substantiate the citing authors view, were unrelated, or even contradicted the authors' assertions.[187, 173, 199;200, 202, ;213-218] They found many instances where the citing authors either didn't read, didn't understand, or didn't care about the contents of the cited articles.

Correctly citing a source requires care and attention to detail. Inaccurate citations can contribute to misinterpretations of data by those conducting bibliometric research. Citation analysis led Cole and Cole to conclude that only a few elite scientists contribute to real progress in science, because only a few scientists' papers are frequently cited while most research by others is rarely cited. From this they draw conclusions about how scarce resources should be distributed to support scientists' work.[219] They labeled this the "Ortega Hypothesis" after their interpretation of *The Revolt of the Masses*[220] by the philosopher, Jose Ortega y Gasset (1883-1955). The problem with their paper is that they were wrong on several fronts. Their citation analysis methods were flawed and their conclusions (greater resources to the elite few do no harm and may actually help the progress of science) were questionable even if their analysis had been correct.[221] However, the most significant errors concern their misquoting of Ortega. Indeed their interpretation was quite the opposite of Ortega's views. Cole and Cole even altered Ortega's words in their quotations, so that it seemed that his ideas supported theirs. This was not an issue of mistranslation – the Coles used the authorized English translation. They did, however, cite grossly incorrect page numbers for the location of the quotes.[222] All of this notwithstanding, Ortega's book does contain material that is directly applicable to this thesis. This will be addressed in the next section under Disciplinarity.

.

Ideally, when using citation-chaining the author recognizes a potentially useful document in a reference list and then obtains and reads it. If the new document sheds light upon the topic, it and its citation will be incorporated into the author's work. If the document is not as relevant as it seemed from the citing paper or if it does not provide anything new it will be set aside. Perhaps, before being set aside, if the article is in any way related to the topic its reference list may provide leads to potentially useful information.

Seeking journal articles through the use of citation index searching is fundamentally different from traditional subject searching. Advocates of citation searching say that using cited reference searching is a way of overcoming the subject-index dependence upon an inflexible controlled vocabulary and the weaknesses of searching by textwords.[190, p. 1-5] By using a cited reference search process, an information seeker is able to find articles that cite a key article.[189] The ability to find articles, however, depends upon the scope of journal coverage in the database. Without broad coverage of journals that contain seed articles and similarly broad coverage of the journals containing citing articles, important references could be missed. References that contain inaccurate information can be completely concealed within a citation database.[188]

In addition to the data quality problem of inaccurate information in citations, the citation can contain accurate information but variants of the authors' names, the authors' institutional affiliations, or the name or abbreviation of a source journal.[223, p. 21] This is particularly an issue for authors whose names do not follow the simple given name – surname pattern. Sometimes more than one journal has the same name with the only difference being its publisher.

The standard abbreviations for cited journals can differ depending upon the protocols of the publication containing the citation. These abbreviation protocols have changed through the years. In 1981, the standard cataloging rules for serial names and abbreviations underwent an important change. Before 1981, the abbreviation for the *Journal of the American Medical Association* would have been not *JAMA* or *J. Am. Med. Assoc.* as it now is, but *Am. Med. Assoc. J.* If an organization name was included in the title, the rule was to list the name first followed by the appropriate title word annals, bulletin, journal, proceedings, etc.[224]

While the maintainers of some citation indices (such as those maintained by Thomson) have standardized their journals by using authority controls, other indices do not use these methods to disambiguate the jumble of journal labels. And although database companies may be able to clarify journals within their systems, someone who chains citations backward from printed reference lists can be confused by the change in naming conventions.

Related Record Searching

Related record searching was introduced as a proprietary search system of the Thomson-ISI family of databases. This method allows a searcher to select an article (or articles) and then request of the database a listing of all other articles that have references in common with the starting article(s). These reference-sharing articles can contain entirely different textword terms – perhaps, terms the searcher had not been aware of. This search method may also identify articles about topics that open new relevancies for exploration.[225]

This subsection described the nature of information and the importance of meaning; the theory, structure and process of information-seeking, and advantages and disadvantages of different information-seeking methods. The following subsection will describe the actual behaviors of information-seeking scholars and the behavioral and social models that may explain their behavior.

THE INFORMATION-SEEKING BEHAVIOR OF SCHOLARS

Research demonstrates that information-seeking behaviors of researchers, even within disciplines, are individualized and personal.[226;227] A few generalizations can, however, be made: accessibility, in terms of ready availability and familiarity, is the most important factor in using any resource.[228;229] Many scientists are unaware of their lack of knowledge about even "familiar" information sources and searching mechanisms.[230] Preferred sources of information for researchers are: colleagues, print journals to which they subscribe, personal journal reprint collections, self-searching online databases, and librarian assistance.[9;229;231;232]

To date, most research on information-seeking behaviors has involved the direct observation of very small groups of subjects, or of surveys of senior scientists or university professors who work in a single-subject field. Until recently, these behaviors have not been described for those who work in the IPSP field or for other far-reaching interdisciplinary fields.[233] Unlike some other disciplines for which a complete literature search may be performed using a single on-line database, information relevant to IPSP issues is scattered across several databases – each with its own arcane search system.[234]

A literature review of the information-seeking behavior of interdisciplinary professionals was conducted in 43 literature databases during March through May of 2005, with the assistance of professional reference librarians. A small body of discipline-specific studies exists but, with only a few exceptions, the information-gathering behaviors of interdisciplinary researchers have largely gone un-researched.[9;11] Yet, the scope of what was labeled as *interdisciplinary* in these studies – environmental scientists and those from the fields of biochemistry, geochemistry, and toxicology[9] or members of selected university research groups who have faculty appointments outside the department-home of the group[11] – seems to be considerably narrower than the scope of disciplines important for the field of injury prevention and safety promotion.

While many senior scientists in chemistry, physics, and the social sciences began their careers long before personal searches of electronic databases became commonplace, many senior IPSP professionals (because the field of IPSP is relatively young) may be more familiar with using electronic search tools. Thus, knowledge of the methods used by IPSP professionals to gather information to support their decisions is particularly important and may also be relevant to other multidisciplinary endeavors.

Thus, several problems combine to make an exhaustive literature search difficult. Potentially important research arises from many disciplines. Each discipline uses its own terminology and publishes in its own journals. We have known for almost 100 years that the ideal injury prevention strategies combine techniques from multiple disciplines – the concept of the "3 Es" (education, enforcement, engineering) was developed in 1915.[235] There are indexed databases that cover each of these fields but their contents may not overlap and the search vocabularies of each are designed to facilitate queries by people within a specified discipline. Researchers from other disciplines are less likely to be able to conduct a fruitful search when they use a system designed for others. This problem is likely to continue until an indexed literature database is developed for the IPSP field.

Informational Literacy

Information literacy is the ability to recognize when and how much information is needed and to locate, evaluate and use it effectively and appropriately.[236;237]

The acquisition of information literacy skills in society is a serious issue. Today, the consequences of reaching adulthood with limited information literacy skills are becoming increasingly severe. Individuals who are unprepared to participate in our information rich society are at an increasing disadvantage. This means that it is critical to integrate information literacy skills into education.[238]

Research has shown that poor information acquisition and evaluation skills are common among entering college freshman.[239;240] Further, almost two-thirds of students are not acquiring those skills prior to earning a baccalaureate degree.[241;242]

In the United States, and perhaps, in other nations, many colleges and universities do not require students to receive instruction on finding and evaluating information to support their academic assignments. Those colleges that do require this often provide no more than a one-hour workshop to cover all library and reference skills.[238]

Access to Information

Access to information can be viewed in terms of knowledge, technology, communication, control, commodities, and participation.[243] Influences on access include physical, cognitive, affective, economic, social and political issues.[244;245] Much of the research in information seeking and access is focused on the physical and intellectual aspects of information access.[246] However, a range of social factors can profoundly influence information access. Each of these influences can be affected by external and internal factors, as well as by the knowledge, skills, and perceptions of individuals seeking information. An increased understanding of these different modes of

information access will facilitate efforts to provide information to those who seek it. Until recently, the field of library and information sciences has largely constrained the study of access to the physical and intellectual domains, without accounting for the social issues that can influence information access.[243]

Physical access

There are at least two types of physical access to information: access to the actual documents and access to catalogs or indices that alert an information-seeker to the existence of the documents. With the exception of a search by browsing (where a catalog or index could actually restrict a productive search) one access type without the other will render any search pointless.

Physical access is necessary in order to view the documents or services that contain the needed information.[243;247] This involves gaining access to the physical or electronic structure that houses the documents and to finding the particular documents. Institutional issues are the chief facilitators or impediments to physical access. If an institution has a desire to make documents available and has storage and retrieval mechanisms that accommodate users with different cognitive capacities, educational and skill levels, or physical abilities; physical access is then available to all. However, this is seldom the case. [243;248] The monetary cost of online indexing services alone (not counting full-text access) is very high. These costs at two universities, San Diego State University and University of California at San Diego were more than US$ 750 000 and US$ 3 300 000 respectively in 2007 (Personal interview with Michael Perkins, Head of Collection Development, San Diego State University Library, 26 June 2008).

> Physical access, however, also depends on knowing that the information is stored and retrievable. To achieve physical access, the individual user has to know that the information exists, where it can be found, and how to navigate the institutional structures to reach it. Individual factors that can affect physical access include technology, economics, geography, and disability. Lack of necessary funds, substantial distance from or inability to use an information source, or inability to enter [a facility that houses] an information source can all create barriers to physical access.[243 p. 57]

Physical access is of utmost importance; without it, no other type of access is possible.[248] However, while physical access is a necessary prerequisite, it is not sufficient for full access. For instance, "it is a common, but mistaken, assumption that access to technology equals access to information".[244, p. 51] The user's ability to obtain and to employ information to accomplish particular goals are very different.[249-251] As a result, the physical aspects of information access cannot be considered without consideration of the intellectual aspects.[243]

Intellectual Access

Intellectual access pertains to the ability to understand how to get to and, in particular, how to understand the information itself once it has been physically obtained.[247] Intellectual access involves understanding how the information is presented to people who are seeking information, and of the impact of such a presentation on the information-seeking process.

> Intellectual access to information includes how the information is categorized, organized, displayed, and represented. Studying intellectual access can reveal the best ways to make information accessible when people act to retrieve the information and bring the information seeker and the information together in the most efficient manner possible through representation of the available information sources.[248, p. 67]

Full intellectual access can only occur when an individual has sufficient information to engage in critical thinking and has been exposed to multiple viewpoints.[252] At a more conceptual level, intellectual access to information "entails equal opportunity to understand intellectual content and pathways to that content".[248, p. 68]

> Factors that can affect intellectual access can include information seeking behaviors, language, dialect, education, literacy, technological literacy, cognitive ability, vocabulary, and subjective views. Each of these factors has the potential to influence whether an information seeker can access the information contained in a source or to even find the source. Intellectual access requires the ability to understand the information in the source. This, in turn, requires the cognitive ability to understand the source, to read the language and dialect in which the source is written, and to know the specific vocabulary that is used. Intellectual access also requires knowing how to use any necessary technology to access the source, such as computers, electronic databases, or the Internet.[248, p. 68]

Competency Theory

Ignorance more frequently begets confidence than does knowledge.
Charles Darwin, The descent of man[253, p. xi]

The phenomenon that is known as "competency theory", or the "Dunning-Kruger effect", provides a framework for understanding the disconnection demonstrated in the information literacy literature between actual skill attainment and self assessments of information-seeking performance. Kruger and Dunning found that "when people are incompetent [that is, 'less competent than their peers' by the authors' definition] in the strategies they adopt to achieve success and satisfaction, they suffer a dual burden: Not only do they

reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the ability to realize it."[254, p. 1121] Across their four studies, participants in the lowest quartile not only overestimated their capabilities relative to their peers but thought that they were well-above average.

More recent research has demonstrated that people with low-level skills in a particular domain tend to overestimate their own skill level and to have trouble recognizing proficiency in others.[245;254;255] They actually display more confidence and certainty than skilled individuals.[241;254]

The degree of miscalibration of a person's assessments of their skill level or success at a task depends upon the difficulty of the task. The magnitude of misjudgment is greater for difficult tasks – tasks for which they lack the requisite knowledge, skills, and experience – than for tasks for which they have the necessary knowledge, skills and abilities.[254;256;257]

As noted above, research suggests that information-seeking typically begins with a sense of uncertainty.[258;259] Students who were unaware of the deficit in their information literacy skills are unlikely to seek skill remediation on their own or to engage with instruction when forced to take it.[242;258;260;261] This gap between self-assessed and actual skills seems to increase as a student completes more years of education.[262;263]

The information-seeking process does not provide much self-correcting information that could reveal the suboptimal nature of their search efforts. A typical search will return a satisfactory quantity of information – much of it useful. However successful the searcher believes the query results are, unless they have searched further, there is no opportunity to compare the original results with anything against which to make a proper judgment.[264]

One of the ways people may assess their own performance is through social comparison – watching the behavior of others.[265;266] This feedback is seldom available to an information-seeker because of the nature of the information-seeking process. Much of it takes place in the privacy of the office and in the searchers' minds. There is little opportunity to observe these things and make comparisons with one's own practices and strategies.

Overconfidence in one's own information-seeking abilities is common,[245;254;267;268] and creates a barrier for searchers between "what they really know and what they could learn to sharpen their skills and make their time online more effective".[269, p. 306]

Social Access

Two similar concepts can provide a framework for analyzing how the norms and attitudes of specific communities influence – or even determine – the ways in which members of those communities access information. Elfreda Chatman's theory of normative behavior through her concept of *small*

worlds[270;271] and what Wenger, McDermott, and Snyder term *communities of practice*[272] describe the ways in which members understand the social place of information differently from members of other small worlds or communities. These have been labeled micro-level models because they describe the information practices of relatively small groups.

Burnett and Jaeger contrast this approach with the ideas of philosopher Jürgen Habermas macro-concept of *lifeworlds*.[273] The lifeworlds approach is a way to examine the social forces that affect what is possible at the micro-level. Habermas was concerned about the potential and real restrictions on the availability of information from the exercise of government power to censor and the filter of corporate influence. While this is an important issue that can block both physical and social access to information, it will not be further discussed here. If governments or the corporations that provide access to information gateways are determined to restrict what is available then that problem must be resolved before any other problems may be addressed.

Small Worlds

A small world is a social environment in which individuals live and work, bound together by shared interests and expectations, information needs and behaviors, and often economic status, and geographic proximity. Wenger writes that communities of practice have three elements: a domain of knowledge that defines the key issues; people who care about the domain; and shared methods of practice.[274] Similarly, a small world is a group in which "mutual opinions and concerns are reflected by its members".[270, p. 213] Within each small world, everyday activities are assumed to be "the way things are" and are frequently taken as being standard to all small worlds, even when they are not. When small worlds intersect, conflicts and misunderstandings between groups can occur.[246] When information means different things to different groups, that interact with one another, social aspects may be just as important as either the physical or intellectual aspects of information access.[243;275]

According to the theory, members of a small world often engage in similar information behaviors, sharing an understanding of how and where information is best accessed and exchanged. Members develop a collective sense of what is important (or not) and of what practices are necessary (or not). It is "the learning of perception in concert with others that alerts members to be conscious of those things that they ought to know".[271, p. 11] Ultimately, these attitudes affect the information behavior of individuals, including their action or inaction with regard to accessing information[270] through official access points or through interpersonal connections.[276;277] Thus, information access plays a key role in the social structure of each small world and "the pattern of one's information behavior is based upon what is typical in the small world in which one lives",[278, p. 100] and works. Further, society as a whole is composed of countless small worlds constantly interacting with one another at various levels. The differing intersecting norms of these multiple small worlds have a strong effect on information access.[279]

Attitudes towards information access in a particular small world, including notions of proper information and information sources and correct ways to access information, can lead to positive interaction or to conflict with other small worlds. When attitudes align, information access is shared across small worlds. In such cases, members of multiple small worlds access and exchange information equally between their worlds. However, if the attitudes do not align, information exchange can be hampered or reduced. Many of these differences involve conflicting social notions of information access, which can lead to many efforts to limit or censor it.(243;280)

The theory of normative behavior has important implications for information access. The social – or *small world* – contexts of information interact with the physical and intellectual aspects of information access and must be taken into account in any full discussion of access. All four of the theories' fundamental concepts (social norms, worldview, social typing, and information behavior) have important implications for information access.

Social norms allow for beliefs about standards of "rightness" and "wrongness" and work to establish a sense of the boundaries between a small world and the outside world around it.(281) When the information coming into a small world from beyond its borders conflicts with the world's normative standards of propriety, the information will seem "wrong" to the members of that small world. It will tend to be ignored – or even dismissed outright – as fundamentally at odds with the values and mores of the world. Thus, social norms may actively impact or limit information access within the small world by defining certain types of information as problematic or even dangerous. For example, throughout the 1990s, it was common to hear complaints about the journal, *Alcohol, Drugs, and Driving*, because it was partially funded by the alcohol beverage industry. It did not matter that the journal published articles that conclusively demonstrated that crashes are caused by impairment from alcohol and not, as argued by some, that risk taking drivers, who would crash anyway (without the influence of alcohol), also happen to drink before driving.(282)

The roles individuals play within a small world are a function of the ways they are *socially typed* by other members of that small world. An individual who is too open to information from outside may become perceived as a disruptive influence and untrustworthy. In December 1993, the U.S. government adopted an external cause code for second-hand smoke within the 1994 International Classification of Diseases - Clinical Modification (ICD-9-CM E869.4). In response, the U.S. tobacco industry through an intermediary organization – Multinational Business Systems – proposed that the government and medical coding community discard the ICD external cause codes and adopt a new coding system, the Nordic Medico Statistical Committee (NOMESCO) model. MBS suggested that the United States and the WHO use NOMESCO codes in place of ICD E-codes to (in their view) better describe injuries. To advocate the alternative codes, MBS convened the First Annual Conference on Improving Clinical Data Bases for Health Policy Development in the summer

of 1996. MBS invited state government employees from public health and occupational and transportation safety agencies, university researchers, and members of health information management community to attend. As an incentive, first-class air and hotel accommodations were offered. The true sponsor of the conference was not revealed but it had been hinted that it was the investor-owned, for-profit hospital industry in an effort to reduce costs by preventing the need for emergency admissions for serious injuries. Soon however it became clear that the true sponsor of this conference was the tobacco industry and that the true goal was not improving cause-of-injury coding.[283] The several injury prevention professionals who were duped and naively agreed to participate as discussion leaders temporarily lost much of their credibility within the U.S. injury research community.

Similarly, the collective perception of things that are deemed important constrains what small world members are interested in or are willing to pay attention to.[270;281] Members of a small world will tend to view information that does not mesh with their community's worldview as lacking, trivial, or as something they can safely ignore. Worldview can lead members of the community to limit access to some information simply because they define that information as having little importance.

Information – essentially raw data – transforms into knowledge through its interpretation and understanding by the user. The user must be able to obtain the information from an acceptable source and by an acceptable means. Spasser wrote,

> The purpose of scientific research is prediction and control, not the understanding that comes from exploration and serendipity; its orientation is toward verification, rather than discovery; its focus is often particularistic and narrow...its ethos is originality and priority, not synthesis and bridge-building.[284, p. 714]

Most health and science researchers, because of their training and socialization, are suspicious of research practices that do not involve testable hypotheses, appropriate sampling designs, and a priori explicitness. Yet, conducting a thorough literature search involves few of these controls. Indeed, it seems that the best techniques for literature searching are nearer to qualitative research methods that lead to the emergence of knowledge[285, p. 35-39] than to the methods of quantitative research. According to Agar, the concept of seeking emergence, "…grates against traditional models of …research that move from hypothesis to data collection and end with analysis."[286, p. 781]

Communities of practice

A community of practice may be defined as "a group of people who share a common concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis."[272, p. 4] People within communities of practice share common values, observe and interact with one another, exchange views and ideas, and contribute

to knowledge creation.[287] Communities of practice are highly improvised, informal, loosely connected, and self-managed.[288;289] The standard practices of researching something are inseparable from the context of what are *perceived* as the standard research practices.[290]

Researchers continue with the information seeking process until they feel that their inquiry has been sufficiently satisfied. "Searching for information involves the implementation of strategies, confrontation of difficulties, and continuous decision making. Choice of information channels [is] based upon researchers' momentary or changing information activities and information needs."[289, p. 6] Decisions are based upon the perceived convenient availability of the information sources and their ease of use.

Disciplinarity

A way of seeing is also a way of not seeing.
Kenneth Burke, Permanence and Change[291, p. 70]

The term discipline signifies the tools, methods, procedures, concepts, theories, and language that shape a profession.[292, p. 104] A discipline serves to organize and concentrate experience into the particular world view of colleagues and peers.[293] The concept of disciplinarity is a product of the 19th century and arose from the evolution of modern natural sciences, the movement from the importance of philosophical approach to knowledge to that of a scientific approach, and the industrial revolution.[294] Practical, economic and social forces combined to limit education and practice to single disciplines. "As the modern university took shape, disciplinarity was reinforced in two major ways: industries demanded and received specialists, and disciplines recruited students to their ranks."[292, p. 21] Then and now, similar issues confront interdisciplinarity: the structural organization of universities and the politics and parochialism of individual disciplines.[295] The organizational and social structures of a discipline impose conscious and unconscious limits on the kinds of questions practitioners ask about their material, the methods and concepts they use, the answers they believe, and their criteria for truth and validity. [296] "There is, in short, a certain particularity about the images of reality in a given discipline."[292, p. 104] While disciplines serve good functions (distinguishing good work from bad) all too often the culture of a discipline is "too self-contained and too much closed to information from the outside"[297, p. 33] thereby inclining a professional to exclude certain dimensions of a problem.

A *different* Ortega hypothesis: The consequences of disciplinarity.

The philosopher, José Ortega y Gasset was quite concerned about how scientific specialization could slow scientific progress or even damage society. He wrote:

> It would be of great interest, and of greater utility than at first sight appears, to draw up the history of physical and biological sciences, indicating the process of increasing specialization in the work of investigators. It would then be seen how, generation after generation, the scientist has been gradually restricted and confined into narrower fields of mental occupation. But this is not the important point that such a history would show, but rather the reverse side of the matter: how in each generation the scientist, through having to reduce the sphere of his labor, was progressively losing contact with other branches of science, with that integral interpretation of the universe which is the only thing deserving the names of science, culture, [and] civilization….[At the close of the 19th century] we meet with a type of scientist unparalleled in history. He is one who, out of all that has to be known in order to be a man of judgment, is only acquainted with one science, and even of that one only knows the small corner in which he is an active investigator. He even proclaims it as a virtue that he takes no cognizance of what lies outside the narrow territory specially cultivated by himself, and gives the name of "dilettantism" to any curiosity for the general scheme of knowledge.(298, p. 109-110)
>
> But this creates an extraordinarily strange type of man. The investigator who has discovered a new fact of Nature must necessarily experience a feeling of power and self-assurance . With a certain apparent justice he will look upon himself as "a man who knows." And in fact there is in him a portion of something which, added to many other portions not existing in him, does really constitute knowledge….The specialist "knows" very well his own tiny corner of the universe; he is radically ignorant of all the rest.(298, p. 111)
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>
> The specialist serves as a striking concrete example of the species, making clear to us the radical nature of the novelty. For, previously, men could be divided simply into the learned and the ignorant, those more or less the one, and those more or less the other. But your specialist cannot be brought in under either of these two categories. He is not learned, for he is formally ignorant of all that does not enter into his specialty; but neither is he ignorant, because he is "a scientist," and "knows" very well his own tiny portion of the universe. We shall have to say that he is a learned ignoramus, which is a very serious matter, as it implies that he is a person who is ignorant, not in the fashion of the ignorant man, but with all the petulance of one who is learned in his own special line."(298, p. 112)

The issues of physical, intellectual, and social access; competency theory, and the negative aspect of disciplinarity seem to offer reasons why many professionals do not search very far from the comfort of familiarity for potentially relevant information. Another normal human nature factor concerns how information-seekers set priorities for their search efforts.

Principle of Least Effort

Extraordinary are the lengths to which people will go to avoid the test-it experience.
Thomas J. Peters and Robert H. Waterman, Jr., In search of excellence.[299, p. 104]

It is accepted as a given that, with the exception of some librarians who perform literature searches for patrons, information-seeking behavior (ISB) follows what is called the *principle of least effort* – that is, a searcher will tend to use the most convenient and familiar search methods and in the least exacting mode necessary to obtain acceptable results.[300-302] Within the context of information-seeking, the principle of least effort was first noted in 1987 by the librarian-researcher, Thomas Mann in his book, *A Guide to Library Research Methods*.[303 pp. 91-101, 221-242] The term, if not the concept, can be traced to the linguist George Kingsley Zipf and his 1949 book, *Human Behaviour and the Principle of Least Effort: An Introduction to Human Ecology*.[304] Zapf believed that PLE governs all human behavior.

Those (almost everyone) who follow the PLE generally do not find relevant material outside the area of expertise or comfort of the searcher. Rather than making an effort to develop a difficult-to-formulate search strategy in which the searcher may or may not be successful, they are satisfied with a simple but imprecise query – particularly if it primarily returns material from comfortable, familiar sources.[305] Wilson suggests that information-seekers both consciously and unconsciously calculate the costs and benefits of their information-seeking strategies by looking at only the information sources necessary to reach a "level of adequacy" at the least cost.[306, p. 73] He suggests that "adequacy" means different things to different scholars and at different times to any individual scholar. Because other things always vie for attention, adequacy or "good enough" is often the best one can accomplish.

The librarians who are asked to perform searches on topics that are outside their area of expertise are likely to follow a principle of maximum query completeness – almost the opposite of PLE. They execute searches attempting to omit little that might be important for the patron's information needs, without knowing exactly what those needs are. However, the more confident a librarian is in understanding the patron's needs the further they are likely to diverge from maximum completeness methods.[301]

Chang and Rice proposed that William Bell's model of animals' efficient foraging and hunting behaviors[307] may be used to "provide some insights for the development of human information behavior theories".[308, p. 250] Sandstrom expands on this suggestion by drawing from Bell and from several researchers

in the fields of 1) the anthropology of primitive human hunter-gatherer tribes; 2) LIS theory; 3) economics; 4) psychology; and 5) other diverse fields. She compared the anthropology of literature search behavior to a hunter-gatherer foraging in an uncertain environment, exploiting certain food resources and bypassing others.[145;302] While the commodities for primitive gatherers have value in their consumability – commodities are scarce and could be depleted; modern scholars seek a vast and inexhaustible resource – information. The value of information is in its relevance and its "novelty to the information-seeker (and to his or her audience)" .[145, p. 421] Here Sandstrom echoes McCain who noted that, "novelty should be as much an indicator of the [searcher's] knowledge state as the breadth of coverage".[309, p. 113]

How much time and effort is needed for a scholar to "forage" successfully for information? The answer depends upon several things. They must already be at a sufficiently high level of knowledge to be able to recognize relevant information and they must have developed skills in seeking and handling information.

> Just as hunter-gatherers and animal foragers alike must maintain input rates (labor energy divided by time) at a consistently lower level than outputs (harvest yields) in order to survive, so scholars expend finite time and energy in obtaining information that will modify or sustain their perceived informed state and, through publishing, ensure their intellectual and social survival.[145, p. 423-424]

Sandstrom continues the foraging metaphor by dividing the necessary tasks between the *search phase* – the time and effort it takes an information seeker to encounter potentially useful information – and the *handling phase*. The handling phase begins once the potentially useful information has been identified and includes the time the time and effort needed to retrieve each document, read it, digest it, and make decisions about its contents. A balance is needed between the energy to find and handle each information item and the many other obligations faced as a daily part of scholarly work. A scholar who gathers too much information runs the risk of being overwhelmed by information of questionable relevance.[145]

This last issue, the risk of gathering too much information, may be a reason that scholars stay within strict disciplinary boundaries. The search time includes the activities needed to identify the information and recognize its relevance. This depends upon a scholar's search knowledge and skills and upon the tools they use in the quest. The seeker will use the tools that are most familiar and easy to use and that achieve results.

Mooers' Law (more or less)

Calvin Mooers, credited with coining the term *information retrieval*, gave a presentation at the annual meeting of the American Documentation Institute at Lehigh University in 1959. His presentation included these words, "An information retrieval system will tend not to be used whenever it is more painful or troublesome for a customer to have information than for him not to have it."[310, p. ii] The full text of Mooers presentation was reprinted at least twice.[311;312] Mooers law has been misrepresented as referring to an information system's usability,[283;313-315] and by Eugene Garfield, the founder of the Institute for Scientific Information and the Science Citation Index, to the quality of information the system contains. [316] Clearly, these authors didn't seek out the source to find the context of Mooers comment. In Garfield's case, a copy of the full text of Mooers presentation cum essay was published as the next item in the same issue of The Scientist [1997; 11(6)]. Although these authors' ideas are probably accurate and certainly important they differ from what Mooers actually said.

The real Mooers' Law

> *We are all aware that some retrieval systems, although technically poor, nevertheless receive intensive use, while other systems, sometimes technically very much better, receive very little customer use….It is my considered opinion, from long experience, that our customers will continue to be reluctant to use information systems – however well devised – so long as one feature of our present intellectual and engineering climate prevails…for many people it is more troublesome to have information than for them not to have it…. An information retrieval system will tend not to be used whenever it is more painful and troublesome for a customer to have information than for him not to have it....In the building and planning of our information handling and retrieving systems, we have tended to believe implicitly, and to assume throughout, that having information easily available was always a good thing, and that all people who had access to an information system would want to use the system to get the information. It is now my suggestion that many people may not want information, and that they will avoid using a system precisely because it gives them information. Having information is painful and troublesome. We all have experienced this. If you have information, you must first read it, which is not always easy. You must try to understand it. To do this, you may have to think about it. The information may require that you make decisions about it or other information. The decisions may require action in the way of a troublesome program of work, or trips, or painful interviews. Understanding the information may show that your work was wrong, or that your boss was wrong, or may show that your work was needless. Having information, you must be careful not to lose it. If nothing else, information piles up on your desk unread. It is a nuisance to have it come to you. It is uncomfortable to have to do anything about it.* [311, p. 22-23]

Mooers' essay was excerpted from one of his earlier publications (1959), the Seven System Models Study in which he concluded, "Where an information system tends not to be used, a more capable system may tend to be used even less."[311, p. 34] He acknowledges that his point of view is a "pessimistic and even a cynical conclusion."[317, p. 32] Austin writes "at first glance such a conclusion would seem to paint [Mooers'] entire career, and those of others in the [information retrieval] field, as a futile endeavor."[318] However, Mooers believed that his "law" didn't apply everywhere but only to certain commercial ventures and government agencies. Mooers reported that there are environments and situations "where the diligent finding and use of information is stressed and rewarded, and where failure to find or to use information is severely punished….in such places, we can expect retrieval systems will be actively used and we can expect pressure from the information users themselves for better systems."[311, p. 23] In this sort of environment, Mooers points out, "…where the need [for information] is high enough [even] fundamentally poor systems may be well used."[317, p. 5]

SUMMARY OF KNOWLEDGE AND RELEVANCE FOR RESEARCH

To the uninitiated, information seeking seems on the surface to be a simple and straight-forward process. From the material discussed in this Background section it should be clear that information-seeking is instead a multifaceted issue that concerns 1) physical access to literature databases and to the literature itself; 2) personal and social issues; and 3) intellectual concerns.

Consider Popper's Three Worlds model applied to information-seeking. All humankind's intellectual products exist in World 3 (objective knowledge). However, many factors interact to make the process of moving information from Popper's World 3 into World 2 (the human mind) complex and difficult. Identifying that the information exists in a named document is a significant chore in itself. Searching for, finding, understanding, and incorporating this information into our knowledge base can be accomplished with perseverance to the necessary tasks. However, human nature and the need to balance effort among other things that vie for attention makes it unlikely that the necessary persistence to the information-seeking task will be applied. The "small worlds", "communities of practice" and "social norms" models all support the idea that searchers will be uncomfortable with straying from what is known and familiar or from what they perceive as normal effort to complete a task. Searching for information from "outside" can be viewed as unnecessary or even threatening. When the behaviors expected from these models are combined with that expected through application of the Theory of Least Effort, a pessimistic view of information-seeking can emerge. When further combined with behaviors and attitudes from Competence Theory – that searchers, despite being unskilled, believe that they know how to search, where to search, and how far to search – the prospect of ever being able to find any information looks bleak.

Most of this section described information and information-seeking in general. When applied to a multidisciplinary field the problems are compounded. With a multidisciplinary approach there is always information from "outside" one's small world or community of practice.

From Popper we know that relevant information exists in World 3 that should be useful. Bradford realized this when he suggested that there are unnoticed discoveries waiting on library shelves. Swanson's demonstration of undiscovered knowledge showed that Bradford was correct and further, that even a non-expert could find hitherto unnoticed linkages between problems and remedies by looking in one database. One can only imagine the potential for undiscovered knowledge if the Swanson methodology could be performed across the several databases that contain reports of research relevant to the multidisciplinary field of IPSP.

Just as in the study of IPSP problems and their solutions, information-seeking research is multidisciplinary. It draws not only from library and information sciences (LIS), but also from fields such as semiology (the study of how meaning is constructed and understood), the sociology of science and knowledge, communication studies, and psychology. I have dipped my toe into some of these areas to provide background for the studies that comprise this thesis in hope of being able to interpret them more completely. Those studies that comprise this thesis examine the issues that affect the ability to identify the documents that contain useful information but that have remained hidden in unfamiliar journals and databases.

AIMS AND OBJECTIVES

The overall goals of this thesis are to increase knowledge concerning the completeness of information-gathering by professionals in the field of IPSP, and the accessibility of information sources available to those working in the field. With this knowledge in hand, it may be possible to find ways to improve yet simplify the process by which IPSP professionals can conduct thorough and focused searches for relevant journal articles.

The thesis consists of six studies, each of which should provide a perspective on the issues involved in finding useful material within the body of scientific knowledge relevant to IPSP. The studies have the following objectives:

INFORMATION AND UNDERSTANDING

What are the important concepts and terms in IPSP?

- To inventory concepts in the field of IPSP. (Study I)
- To determine the terms used to label those concepts by lay persons and by professionals in many of the disciplines that publish articles relevant to IPSP. (Study I)

INFORMATION SOURCES

What are the scholarly journals that publish IPSP-relevant articles and the literature databases that include them? How easily available are the IPSP articles contained in them.

- To describe the historical trends in IPSP journal publications. (Study IV)
- To identify IPSP-relevant journals and the literature databases that include them. (Study IV)
- To determine whether the database vocabulary index terms and indexing protocols of existing databases facilitate the finding of articles on key IPSP topics. (Study V)
- To determine what is missed by searching only one database. (Study VI)

INFORMATION-SEEKING BEHAVIOR

How do IPSP professionals search for articles and what training have they had in search techniques?

- To identify the terms used when seeking journal articles. (Study II)
- To determine how searchers' query practices affect the depth, breadth, and quality of the articles found in a database (Study II)
- To identify the literature databases used by IPSP professionals. (Study III)
- To describe database searchers' behaviors and skills. (Study III)

MATERIALS AND METHODS

SETTING - PLACE, TIME AND CIRCUMSTANCES

Researchers seem to know what is meant by *setting* – the place, time, and circumstances in which a study takes place – but finding a definition of the term in a research context proved difficult. The term *setting* was not included in Last's *Dictionary of Epidemiology* nor was it defined in Rothman's *Modern Epidemiology* or Berkman's *Social Epidemiology*.[319-321] The studies in this thesis examine the terms used in IPSP to communicate important concepts, the sources of information (journal articles and the databases that index them), and the behaviors of information seekers.

Place

A definitive description of the physical setting for the studies that comprise this thesis is all but impossible. It could be said that the studies concern the physical and social aspects of identifying information in Popper's World 3 and moving the information to World 2 so that we may use it. That is, at best, an abstraction and not what most researchers associate with their idea of a study setting.

Although there is no tangible physical setting for the six studies that comprise this thesis, it may be useful to visualize a metaphorical one – the information marketplace. Within this milieu, IPSP professionals find, produce, and use information in their work.

The Information Marketplace

Just as we go to a store to buy things, we also shop for knowledge. Let us compare a literature search to buying groceries. Often when we shop we have a general idea of what we want but have not reached a decision about exactly what or how much we need. There are many places (i.e. literature databases) to shop. (See Appendix 4.) Furthermore, because most stores specialize in information that is the product of only one or two professional disciplines, any given store will have only a portion – albeit considerable in some instances – of what is available in the total marketplace. To extend the metaphor, this means that it would be necessary to visit several specialty stores to obtain all of the ingredients needed to prepare a meal. Most items in the inventory, although they may be quite similar, have many possible names because they come from different companies. Some items may be almost hidden at the back of a very high shelf. Once a store adds an item to its inventory it will remain there for years. Is there a way to tell if the item has turned sour?

Stores are constantly adding items to their inventory – thousands of new items each year. When we make a request for something we are likely to be offered much more than we need and some of the items may have nothing to do with what we thought we requested. With so many options, how does a shopper avoid becoming overwhelmed? In the real world, those who have wealth may hire a personal shopper to navigate through these problems and make the right purchases. Our metaphorical setting is more egalitarian, almost anyone can use a personal shopper because librarians can serve in that role.

Individuals can also access the stores directly by going online to literature databases. However, the untrained shopper may not always find exactly what they envisioned or may not know that they have found only a few of the items available. Further, with some databases a shopper only learns that an item that might be of interest exists but must go elsewhere (to the publisher, to a library) to find out if the item is what it seems to be and make a decision about its usefulness.

What is available in the information marketplace? How many stores must a shopper visit to find everything they want or need?

> What are the journals that publish relevant articles?
> What literature databases include those journals?
> What is missed if a searcher uses only one database?

Do the purchasers of information know where to go to obtain what they need and how to find the information once they get to the store? Are the products labeled in a way that shoppers may easily recognize and select the items they need?

> Do information seekers use the appropriate databases?
> Do the searchers use the database tools necessary to find what they want?
> Do searchers know the relevant terms that label the concepts they seek?

Have the information marketers designed their stores so that shoppers can find and then reach only the products they need?

> Are the database search tools appropriate for finding IPSP related content?
> Are the search tools useful for focusing a request and avoiding irrelevant content?

Time

Data collection for the studies took place from January 2000 through June 2008. However, much of the work (hand-searching journals, etc.) included current literature and literature published in journals back to the year 1900. Although publications from the past 100-plus years were examined, the main focus of the studies is on the present – the journal articles that are available to read, the databases that facilitate finding them, and the behaviors of those who search those databases.

Circumstances

The studies investigate how IPSP information seekers behave when they recognize a need for information and take action to fill that need. There are any number of situations that may trigger the recognition of a need for information and with each situation an information-seeker can pursue a different approach to querying a database. A person's perception of his or her knowledge plays an important role in influencing information-seeking behavior and individuals may be less likely to thoroughly seek information on a topic they feel knowledgeable about. Indeed, this perceived knowledge has been found to be more important than actual knowledge when forming plans and acting to search for information.[322-324] The studies in this thesis, like other studies of information-seeking, do not attempt to discover if there are different search behaviors by searchers with different needs or who are at different stages in

their planning-researching-writing process. While this *may* be an important unknown, the LIS research articles described in the Background section did not address this issue either.

DATA SOURCES, STUDY OBJECTS, METHODS

Table 4 summarizes the issues, the data sources, and the study population and samples for each of the six studies. Studies I, IV, V, and VI involved the examination of documents. Studies II and III used a convenience sample (SafetyLit users) of literature database searchers in the field of IPSP.

Table 4. *The Issues, the Studies, the Studied, and the Data Sources*

Issue	Study Topic / Question	Object	Population	Data Source(s)
Information and Understanding	Study I An inventory of Key IPSP Concepts and the terms that label them	IPSP-related concepts and terms		-Printed reference works -Terms from SafetyLit server logs -Lists from colleagues
Information Sources	Study IV IPSP journal publication trends and the databases that include them	IPSP journals and databases		-SafetyLit database -Ulrich's and WorldCat -Five literature databases
	Study V The usefulness of database controlled vocabularies for finding the IPSP articles they contain	Terms from the MEDLINE and PsycINFO controlled vocabularies		-Terms identified in Studies I and II -Results of searches by five librarians in MEDLINE and PsycINFO on key IPSP topics
	Study VI The comprehensiveness of a search using a single database for finding IPSP articles on a topic.	IPSP articles in EMBASE, MEDLINE, PsycINFO, and Web of Science		-Terms identified in Studies I and II -Pooled search results from textword searches or four databases
Information-Seeking Behavior	Study II Observed Search Behavior		All IPSP info-seekers. Sample: SafetyLit website visitors	-Terms identified in Study I -SafetyLit web server logs -SafetyLit article database
	Study III Self-Reported Search Behavior, Skills, and Satisfaction		All IPSP info-seekers. Sample: SafetyLit email subscribers	-SafetyLit subscriber survey -IPSP articles in Clinical trials databases.

Information and Understanding

What are the important concepts and terms in IPSP?

Important concepts and terms in the IPSP field (Study I)

Study I:

- inventoried the important concepts in the field of IPSP; and
- determined the terms used to label those concepts by lay persons and by professionals in many of the disciplines that publish articles relevant to IPSP.

Data sources
Published scholarly literature and specialty dictionaries of professional technical language were used to identify the concepts relevant to the field of injury prevention and safety promotion (IPSP), and to catalogue the terms used to label each concept.

Study object
Each of professions that produce information that is relevant to IPSP uses technical terms to label key concepts and these are collected and defined in reference works – specialty dictionaries, glossaries, and thesauri. Appendix 3 lists the relevant professions and their dictionaries, glossaries, and thesauri that were used as reference sources. Topical books, journal articles, and reports that were published by writers within each of the relevant professions also contain important concepts and their term labels. A list of the scholarly journals that were examined is included as Appendix 6.

Method
Assembling the inventory has involved three steps:

Step 1: Identifying reference works
Several methods were used to find the potentially relevant reference works:

- the electronic catalogs of three university libraries were searched using the title words "dictionary" OR "glossary" OR "lexicon" OR "thesaurus";
- the websites of booksellers (new and used) were similarly searched; and
- the Taxonomy Warehouse website[(325)] was browsed.

Step 2: Obtaining the reference works
Titles of reference works that appeared to be relevant to IPSP were listed. The listed reference works were then obtained through the libraries, read online, or purchased.

Step 3: Identifying IPSP concepts and the terms used to label them
This inventory involved examining: a) 142 reference works (glossaries, keyword lists, specialist dictionaries, English language dictionaries, and database thesauri) from the 38 professional disciplines that publish information relevant to IPSP (Appendix 3); and b) the contents of 30 professional journals (Appendix 6) selected for their contents.

The contents of the reference works and scholarly journals were inventoried to identify *concepts* relevant to the injury prevention and safety promotion (IPSP) field. A catalogue of the *terms* used to label those concepts was also developed. This catalog was developed by first listing all terms alphabetically, and eliminating duplicate terms using TextPad software. Then, to create a structure out of the unduplicated alphabetical list, all terms were imported into MultiTes[326] software. This software facilitated the process of combining terms into broad categories (transportation, violence, natural hazards, etc.) and then into synonym groups.

The publication from this study (See Study I) also reported on the ongoing process of developing an English language thesaurus of terms and concepts relevant to IPSP. As such, the methods outlined above did not conclude with the publication of article. Reference works, concepts, and terms continue to be identified and added to the thesaurus. Although the development process is being carried out in English, the MultiTes software was selected specifically because it has the capacity to expand the thesaurus into multiple languages.

These concepts and terms were used as a resource for Studies II, V, and VI.

Information Sources and Their Function

What scholarly journals are important to IPSP and what databases contain them?

Are the controlled vocabularies of commonly-used literature databases useful for finding IPSP-relevant articles ?

What is missed when a literature search for IPSP-related articles uses only one database?

IPSP journals and the databases that list them (Study IV)

Study IV:

- described the historical trends in IPSP journal publications, and
- identified journals that publish IPSP-relevant articles and compared the journals with the contents of literature databases.

Data sources

- Ulrich's Periodicals Directory[327]
- WorldCat[328]
- Information provided by the publishers of selected journals.
- Information provided by the publishers of selected literature databases
- The results of Study III

Periodical Directories and Catalogs

Ulrich's Periodicals Directory

Ulrich's Periodicals Directory is the standard library directory and database providing information about popular and academic magazines, scientific journals, newspapers and other serial publications. The print version has been published since 1932, and was founded by Carolyn Ulrich, chief of the periodicals division of the New York Public Library.(329) The current version, now online, contains information concerning more than 300 000 periodicals of all types. Included are those currently published (including all previous titles) and periodicals that (since 1974) have ceased publication.

Ulrich's Subject Headings are proprietary and are used to classify the serials in the database. They are based on U.S. Library of Congress subject headings (LCSH)(330), but are created and maintained by Ulrich's. There are approximately 100 top-level Ulrich's subject headings and more than 950 in all. The publishers of periodicals that provide Ulrich's with data may select and assign Ulrich's subjects to their publications. If a publisher does not designate an Ulrich's heading, but provides a Dewey Decimal Classification(331) or LCSH, the Ulrich's editorial team maps the original heading to an Ulrich's subject and stores the original classification in the Ulrich's record. If data are received without pre-assigned Ulrich's headings or without Dewey or LC subjects, the editorial team determines and assigns one or more Ulrich's heading based on the publisher's content description, information from the publication's website, or other sources. A title in Ulrich's may be classified under as many as four Ulrich's subjects, although the vast majority of titles are classified under one heading or a heading and sub-classification.(327)

WorldCat

WorldCat is a catalog which itemizes the collections of more than 7,500 participating libraries from more than ninety countries. WorldCat includes records for books, videos, serial publications, articles, recorded books and music, electronic books, sheet music, genealogical references, cultural artifacts, digital objects, and Web sites. Created in 1971, it contains more than 90 million different records as of November 2007. The studies in this thesis focused upon the listed serials.

WorldCat uses several classification category schemes (Dewey, LCSH, MeSH, and others) and all items are classified under each scheme. To facilitate inclusiveness, relevant descriptors from each scheme were used.

Ulrich's and WorldCat compared

Each of the two systems contains information about journals that are included in the other. Ulrich's is particularly useful for science and engineering journals that are currently published but may not be included in the library collections that provide the contents of WorldCat. WorldCat is more suited than Ulrich's for serials that ceased publication before 1975.

Study object

The object of Study IV was the interaction between two lists that were developed for this research project: 1) an inventory of journals that publish IPSP-relevant articles and 2) the source journal listings for the five most-used databases as identified in Study III.

Many tens of thousands of serials (journals, magazines, newsletters, etc.) are currently being published or have been published in the past. This study would have been impossible without some means of identifying those that may be relevant – that is, they contain: 1) peer-reviewed scholarly articles written in the English language or, if written in another language, accompanied by English language summaries; and 2) articles on topics relevant to IPSP.

Two library online reference works were used, Ulrich's Periodicals Directory[327] and WorldCat[328] to identifying potentially appropriate journals. These two resources classify journals by language and topical category. (A listing of the topical categories used from each database is included in Appendix 7.) It was a straightforward process to eliminate non-English language material and to identify publications by the categorical relevancy of their content. Ulrich's also identifies the journals that screen submissions through a peer review. A list of approximately 18 000 journals was created so as to be subjected to further screening in Study IV.

Most journal publishers provide listings of the literature databases that include each of their journals and most literature databases make available lists of the scholarly journals that are included in their contents. (See Appendix 4) These lists were used to identify the IPSP-relevant journals contained in each of the five frequently-used databases that were identified in Study III.

Method

An inventory was conducted of journal titles listed under selected IPSP-related categories (Appendix 7) from two catalogs: Ulrich's and WorldCat. Journals were identified through a structured procedure that included hand-searching the most recent three full-years of publication of each journal for those that contained an average of four or more peer reviewed, IPSP-relevant articles per year. The data-gathering for this study was completed in 2007 but it built upon several thousands of hours of work in progress since 2000 to identify material to be added to the SafetyLit archive. For journals that were currently published, this involved hand-searching volumes from 2004 – 2006. For a journal that ceased publication at the end of 1999, this involved examining volumes published in the years 1997, 1998, and 1999.]

Article relevance was assessed using the inclusion criteria for SafetyLit (see box). Of the 17,839 journals that were assessed, 597 met the threshold for this study. The publishers of these 597 journals were consulted to determine the bibliographic databases that list each journal's contents.

Each of the 597 identified journals was hand-searched from its first issue and IPSP-relevant articles were added to the SafetyLit archive database.

Relevancy Criteria used for SafetyLit:
Articles, editorials, letters to the editor, and policy statements written in the English language (or, if in another language, published with an English abstract) were included if they concerned:

- Intentional or unintended injuries;
- Injury prevention – that is they concerned any of the pre-event or event elements of the Haddon Matrix[20] (host factors, vehicle factors, and physical and psychosocial environmental factors);
- Safety promotion – that is promoting a shared set of beliefs, attitudes, values, and ways of behaving that support the prevention of injury[332];
- The epidemiology of injury, or injury risk factors; or
- The financial, personal, or societal costs or consequences of any intentional or unintended injury or injury risk factor.

The data was treated as follows:

1. A MySQL database was used to perform basic queries and statistical summary analyses for journals published 1900-2006.
2. The number of IPSP journals and journal articles was plotted for those years to identify publication trends.
3. The publication year range of each IPSP journal was compared with the coverage, if any, of the journals in each of the five databases.

The controlled index vocabularies of MEDLINE and PsycINFO (Study V)

Study V:

- determined the ability of the controlled vocabularies of two literature databases to facilitate searches for articles on key IPSP topics.

Data sources

- Key IPSP topics identified from the results of Study II
- The results of database search strategies constructed by professional librarians
- The controlled vocabularies of the MEDLINE and PsycINFO databases
- The journal articles listed in MEDLINE and PsycINFO for the years 2003-2005
- IPSP concepts and the words used to label them from the results of Studies I and II

Study Object
The objects under examination in Study V were the controlled vocabularies of two literature databases (MEDLINE and PsycINFO).

Methods
Librarians with graduate degrees in library science were recruited to participate in the investigation of the ability of the controlled vocabularies of MEDLINE and PsycINFO to identify journal articles on IPSP topics. The librarians themselves were not under study but instead served as instruments to assess the quality of the database vocabularies. Although a substantial honorarium was offered and a variety of ways to contact potential volunteers – telephone calls, direct email, messages to electronic mailing lists – were used; there were problems recruiting participants. Five librarians agreed to participate. All five of them work in the information and reference specialty and, thus, have extensive experience in conducting literature searches.

Each librarian was asked to construct search strategies for MEDLINE and PsycInfo that would identify articles, letters, and editorials published during the three-year period 2003 through 2005 on five IPSP topics that were among the most sought after by searchers (Study II). The specific five topics were selected to reflect different injury types, risk behaviors, and prevention strategies. The instructions provided to the librarians are included as Appendix 8.

These were:
- bicycle-related brain injuries;
- driving under the influence of alcohol;
- residential fire injuries;
- crash injuries due to road rage; and
- self-harming behavior among adolescents.

For each topic, the searches were expected to identify items useful to help in answering the following questions:
- What is the magnitude of the problem?
- What are the causes and circumstances of the problem?
- What are the physical, social, and economic consequences of the problem?
- What is being done to prevent the problem?
- What prevention efforts have been shown to be successful or unsuccessful?
- What is the degree of individual and societal acceptance of prevention efforts?

Their search strategies could contain any combination of controlled vocabulary terms and textwords.

The ten search strategies from each librarian were compared in order to identify similarities and differences in approach. The author implemented the strategies to assess for any differences in the listings of articles that were

returned. The author also performed serial textword queries of each topic in each database using all topic-relevant synonyms identified in two recent reports (Studies I and II).[19;233] The products of the librarians' search and of the serial textword searches were then compared.

To identify specific indexing problems, the index terms that had been assigned to each article identified through textword searches were compared with those assigned to the articles found through the librarians' search strategies. Indexing inconsistencies were reported to the institutions that maintain MEDLINE and PsycINFO.

The letter that recruited the librarians included a promise that the librarians' search strategies would not be revealed. However, after it was found that all the strategies resulted in the exactly same return to the database queries, each of the five participating librarians was contacted and each immediately agreed that their strategies could be published.

The comprehensiveness of a search using a single database for finding IPSP articles on a topic (Study VI)

Study VI:

- determined what is missed by searching only one database.

Data sources

- The synonym terms for the five key IPSP concepts that were identified in Studies I and II.
- The journal articles listed in EMBASE, MEDLINE, PsycINFO, and Web of Science for the years 2003-2005

S*tudy object*

The individual and pooled contents of EMBASE, MEDLINE, PsycINFO, and Web of Science

Methods

The synonym textword terms that were identified in Studies I and II were used to conduct searches of the EMBASE and Web of Science databases on the five key topics. The products of the serial searches of MEDLINE and PsycINFO from Study V were added to form unduplicated master lists of all items available in EMBASE, MEDLINE, PsycINFO, or Web of Science on each of the topics. The database-topic lists were each compared to the new master list of articles within each topic. The proportion of the total articles on each topic using each database was calculated to quantify what is missed by searching only one database.

Information-Seeking Behavior

Observed behaviors of those who search the SafetyLit archive (Study II)

Study II:

- identified the terms used when seeking journal articles in SafetyLit; and
- determined how searchers' query practices affect the depth, breadth, and quality of the articles found in a database.

Study population
The population under examination in Study II was all persons in the field of IPSP who use literature databases when they search for articles published in scholarly journals.

Study sample
Visitors who searched the SafetyLit website database of IPSP-relevant literature.

SafetyLit website users were chosen as a convenience sample of the population of all persons in the field of IPSP who use literature databases when they search for articles published in scholarly journals. Little is known about individuals in the study population or in the sample other than that they have an interest in IPSP journal articles. The SafetyLit website users who query the database are a subset of all visitors. Thus, it is impossible to measure the representativeness of the sample. However, the sample can be described. During the year 2005 (i.e., the year the study was conducted), the SafetyLit Web site averaged 50 000 unique visitors, 360 000 page views, and 4500 uses of the database query system each week. Analysis of the SafetyLit web server logs (see below) demonstrate that each week the site had visitors from 163 – 178 of the (then) 191 United Nations member states.

Data source

- SafetyLit webserver logs
- Terms identified in Study I

The web server that houses SafetyLit, like essentially all World Wide Web servers, gathers information about each computer that requests a web page. This information is collected in a log that records all server activity such as the time of the request and the IP address of each visiting computer. When a web server's search system is used, the search terms in a visitor's inquiry are also recorded.

Methods
The behaviors of visitors to the SafetyLit website who queried the database of archived literature were examined through an analysis of computer web server logs to learn how visitors to the SafetyLit website search for information.

All terms used to search SafetyLit during the years 2000–2005 were listed and then examined to identify terms that are synonyms for the same concept. Study II used the listings of concepts and terms that were the product of Study I as a data source to identify concepts and synonyms.

Terms were grouped by concept, the number of queries that used terms within each concept category was summed, and the concepts were then ordered by the total number of searches for each concept category. The 25 most searched-for concepts and the synonym terms for each concept were listed.

For each synonym term, the proportion of all articles for that concept that could be found by using it alone was calculated.

To determine how frequently searchers repeated their queries using two or more synonyms, the SafetyLit server logs were examined for a two-week time period. Every appearance of each of the synonyms for the top 25 IPSP concepts was identified. For each term used in a query, server logs were examined 90 minutes before and 90 minutes after each query to determine the number of times any synonym was used. If multiple synonyms were found, the IP addresses of the computers used to perform the searches were compared to identify searchers who conducted multiple queries on the same concept.

Survey of subscribers to SafetyLit Update Bulletin (Study III)

Study III:
- identified the literature databases used by IPSP professionals; and
- described database searchers' behaviors and skills.

Study population
As with Study II the population under study was all persons in the field of IPSP who use literature databases when they search for articles published in scholarly journals.

Study sample
Study II used visitors to the SafetyLit website as a convenience sample. A similar but different sample was selected here – email subscribers to the weekly SafetyLit Literature Update Bulletin.

SafetyLit offers a weekly bulletin that lists recently published research relevant to IPSP. At the time this study was conducted (2006) there were approximately 19 000 people listed as subscribers. Other than their interest in keeping current with research publications and their stated nationality, little is known about these subscribers. The process of subscribing requires the subscriber to provide

an email address, a name, and his or her national affiliation. After this information is supplied, a message is sent asking for a reply to confirm the subscriber's address and desire to participate. This process helps to eliminate unwanted subscriptions.

Data source
SafetyLit email subscribers were surveyed to learn about their performance and knowledge of several key search behaviors necessary for conducting an exhaustive literature search. The survey included both closed- and open-ended questions and the responses provided the data for analysis.

Methods
Subscribers to the SafetyLit Update Bulletin were sent a brief message in the weekly email that contained a link to a more detailed cover letter and introduction to the survey. The letter informed potential participants of the nature of the study and how the data would be used. The stated purpose of the survey was to gain insight into how respondents used other literature databases, to have them offer their opinions about the searches, and about any training they have received in literature search techniques.

Five requests to participate were sent to all SafetyLit subscribers via the regular weekly email messages between August 21 and September 18, 2006. The request contained a coded link to the survey website so that each subscriber's identification number (SIDN) was temporarily included as part of their record. Survey responses were counted only if the respondent reached the survey website via a coded link, and only the final survey response from any SIDN was included in the survey analysis. Thus, only SafetyLit subscribers could participate and only one record from any subscriber was recorded.

Exploratory interviews concerning literature search practices were performed with eight people as a preliminary to writing the survey instrument. The questionnaire was created on paper, pilot tested, and then revised before it was moved to electronic format on the Survey Monkey site.[333] The survey was again pilot tested, and minor changes were made to improve clarity and flow.

The full survey instrument is included as Appendix 9. The following are selected questions and answer options that were considered for further investigation:

(1) Search frequency
‘‘During the past three months, about how many times have you searched any other database (NOT Safety-Lit) to find literature about an injury prevention or safety promotion topic?: 1–2, 3–5, 6–9, 10 or more”.

(2) Search performance
Options were: always perform search myself, usually perform search myself, search myself about half the time, usually ask someone else to search for me,

always ask someone else to search for me. The respondents were asked to classify the searcher if
they usually or always asked someone else to search the literature. Their options were: Librarian, non-librarian colleague or friend, non-librarian subordinate
employee or student.

(3) Databases used
(a) ‘‘When you searched for journal articles, what literature database(s) have you used during the past TWO YEARS?” (b) ‘‘The last time you looked for journal articles about a safety topic, what database(s) did you use for your research?”

The database options for items 3, 4, and 5 were: CINAHL, Ei Compendex, EMBASE, ERIC, IBSS, ICONDA, ITRD (IRRD), ISTP, MEDLINE/Pub-Med, PsycINFO, Science Citation Index, Social Science Citation Index, SPECTR, TRIS, Web of Science, and ZeTOC. Respondents were also given the opportunity to list other databases they have used. A link to a list of other databases was available as a memory refresher.

(4) Self-assessment of competence/skills
‘‘I consider myself to have the knowledge and skills necessary to perform a satisfactory (i.e., thorough and focused) search of the following databases:”

(5) Prior database training
‘‘I received skills training to search the following databases: . . .”
(6) The last time I searched for journal articles I: (a) entered a single word or phrase in the database search box or (b) used Boolean terms (AND, OR, NOT) to focus my search.

(7) The last time I searched for journal articles I (a) was seeking a single specific article or a few known articles or (b) searched to find all articles on the topic of interest.

(8) Information was also requested about: (a) whether a respondent’s work or volunteer efforts require that they seek scholarly literature on IPSP; (b) how many years they have been involved in a field that uses IPSP research literature; and (c) the level of focus of their queries.

The responses of librarians and non-librarians were separated because the results were quite different for the two groups. The published study only included the responses of the non-librarians. For comparison, the summarized responses from the librarians have been included in the study results below.

Response frequencies and proportions were calculated using Microsoft Excel 2003.

RESULTS

INFORMATION AND UNDERSTANDING

What are the important concepts and terms in the IPSP field?

Important concepts and terms in the IPSP field (Study I)

The published article[19] from this study included an inventory of concepts relevant to IPSP and the terms (and their synonyms) that label them that were culled from the sources described here on page 54. At the time the article from this study was published (October 2005) more than 8800 injury and safety-related terms had been identified. As with any reference work (the IPSP thesaurus under development) on a living language, this project may never be considered complete. As of 1 August 2008, then number of IPSP concepts and total terms had reached 3511 and 10 946. Thirty-one additional sources have been found and remain to be examined for additional concepts and terms. The list of terms and reference sources is updated frequently and is available at http://www.InjuryPreventionThesaurus.com.

As could be expected many terms can be used to describe a concept. Examples from infant product safety issues can be found in the Box below. The same issue was identified with other concepts (Appendix 10) such as: driving an automobile after drinking ethanol (20 synonyms), foot-propelled scooters (26 synonyms), etc.

Synonym groups for selected consumer products for infant use

Baby bath seats
Baby bath chairs
Baby bath rings
Baby bath supports
Baby bathtub seats
Bathing rings
Infant bath chairs
Infant bath rings
Infant bath seats
Infant bath support seats
Infant bathing rings
Infant bathtub seats

Baby Go-Carts
Baby Go-Frames
Baby Mobiles
Baby Walkers
Baby Walking Frames
Babymobiles
Babywalkers
Infant Mobile Walkers
Infant Scooter Frames
Infant Walker Mobiles
Infant Walkers
Infant Walking Aids
Infant Walking Frames
Infant Wheeled Walkers
Mobile Infant Walkers
Youpala

INFORMATION SOURCES AND THEIR FUNCTION

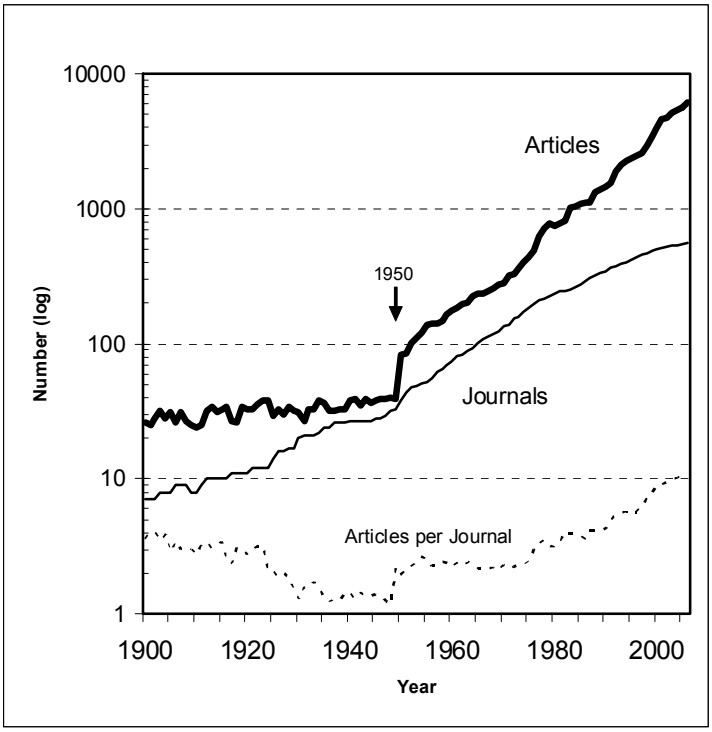
What are the scholarly journals that publish IPSP-relevant articles and the literature databases that include them? How easily available are the IPSP articles contained in them?

IPSP journals and the databases that list them (Study IV)

- What are the historical trends in IPSP journal publications?
- *What are IPSP-relevant journals and the literature databases that include them?*

There has been an exponential growth in the number of IPSP-relevant journal articles published each year since 1950. The number of journals publishing four or more IPSP-relevant articles per year and the mean number of articles per journal has similarly increased (Figure 3).

Figure 3. Number of injury prevention and safety promotion (IPSP) journal articles published per year, number of journals publishing four or more IPSP articles per year, and the mean number of articles per journal per year (1900-2006).



As of December 2007, 597 such journals were identified that publish four or more IPSP-related articles per year – the threshold criterion for inclusion in this study. However, only 160 of these journals are included in all five of the

most used databases identified in Study III. None of these journals have all publication years included in all databases.

Appendix 2 comprises a table displaying these 597 journals, the range of years for which the journal has been published, the mean number of IPSP-relevant articles published per year, the proportion of the total articles that are IPSP relevant and the range of years for which the journal has been included in the five literature databases.

Search vocabularies of MEDLINE and PsycINFO (Study V)

- Do the database vocabulary index terms and indexing protocols of existing databases facilitate the finding of articles on key IPSP topics?

This study compared the research results of controlled vocabulary search strategies that were constructed by professional librarians with serial textword searches on the topic using multiple synonyms for each related concept. The analysis and comparisons of the search strategies and of the articles that were returned when the searches were implemented revealed the following chrematistics:

- The librarian-constructed searches when implemented produced exactly the same listings of articles in each database on each topic
- There were minor structural differences in the search strategies but these were related to the search formats required by gateway retrieval services they used (PubMed, Ovid, EBSCO, etc.) and not the strategy content.
- All librarians interpreted the instructions to mean that the search strategies should be more restrictive than the intent of the researcher.

Controlled Vocabulary-Based Searches Vs. Textword Searches

When the product of the thesaurus-based searches were compared with the product of serial textword searches on each topic in each database, it became clear that fewer relevant articles were found through the thesaurus-based strategies than through serial textword searches. The results of the searches are summarized in Table 5

Table 5. *Journal articles on key IPSP topics in PsycINFO and MEDLINE (2003-2005): Searches using thesaurus-based strategies and serial textword searches compared***.**

Topic	PsycINFO		MEDLINE	
	Librarians	Textwords	Librarians	Textwords
Bicycle-related brain injury	23 (48.9%)	47	53 (57.6%)	92
Ethanol-impaired driving	167 (62.3%)	268	278 (55.5%)	501
Residence fires	14 (48.3%)	29	35 (48.6%)	72
Road rage	27 (58.7%)	46	18 (37.5%)	48
Suicide among adolescents	754 (89.7%)	841	1632 (77.8%)	2098

Despite instructions to construct "comprehensive yet focused" search strategies, each strategy included terms that restricted the search focus. Further, each of the librarians used textwords very sparingly when they constructed their strategies. Therefore, the results list for each topic included (with the exception of the "road rage" search in MEDLINE) only relevant articles. (One article used the term "road rage" as a metaphor.) Table 6 provides examples of the essence of the search strategies and comments about the indexing irregularities that led to relevant articles being missed by a vocabulary-term-based search on each topic. The strategies are presented in generic form to eliminate the formatting issues related to the librarians' chosen retrieval service. When the index terms that had been assigned to the librarian-identified articles were compared with those assigned to the articles that were only identified through textword searches several indexing and classification issues emerged.

Table 6. Restrictive nature of search strategies and the indexing problems that led to a loss.

Bicycle-related brain injury	
Database	Search terms used
PsycINFO	((DE *Traumatic brain injury* AND (TX bicycl* OR TX bike*)) OR (DE Transportation accidents AND (TX bicycl* OR TX bike*))

Comment: The PsycINFO thesaurus gives specific instruction to use the broader term "transportation accidents" for articles about bicycle accidents. However, the articles unavailable to librarians were indexed with the terms *pedestrian accidents* or *recreation*.
The search requirement that traumatic brain injury be included as a descriptor term led to a large loss. The descriptor-based searches missed articles on bicycle helmet legislation, helmet-wearing promotion programs, studies of helmet effectiveness, and cost-benefit analyses of helmet promotion projects.

MEDLINE	*Brain injuries*[MeSH] and *Bicycling*[MeSH]

Comment: Although there is a controlled vocabulary (MeSH) term for "bicycling" and a sub-term "injuries" the articles that weren't identified by librarian searches were indexed with the terms "athletic injuries" or the term "accidents, traffic" with no mention of bicycles. The dual requirements that articles be indexed using both a brain injury and a bicycling term led to a return that missed articles concerning bicycle helmet legislation, helmet-wearing promotion programs, studies of helmet effectiveness, and cost-benefit analyses of helmet promotion projects.

Ethanol-impaired driving	
Database	Search terms used
PsycINFO	DE *Driving under the influence*

Comment: Although there is a term "driving under the influence" the lost articles were indexed under "highway safety" or "transportation accidents" with no mention of alcohol. There is an index term *blood alcohol concentration* but the broader term, *drug usage screening* was assigned to the lost articles and, again, there were no terms assigned that referenced the transportation component. Articles about impairment and blood alcohol levels, enforcement of driving under the influence (DUI) laws, DUI legislation, DUI recidivists, alcohol server training were not indexed with the term *Driving under the influence*.

MEDLINE	*Automobile driving*[MeSH] AND *Alcohol drinking*[MeSH]

Comment: There are controlled vocabulary (MeSH) terms for *alcohol drinking* and *automobile driving*. However, the "lost" articles were indexed with *psychomotor performance* without any terms related to transportation; or they were indexed *accidents, traffic* with no terms related to the alcohol component. As above, the articles that were missed my a “pure” MeSH search concerned impairment and blood alcohol levels, enforcement of driving under the influence laws, DUI and the justice system, DUI legislation, DUI recidivists, alcohol server training, etc.

Residence Fires

Database	Search terms used
PsycINFO	DE *Home accidents* AND DE *Fire prevention*

Comment: The lost articles were indexed with the term *fire prevention* with no term reference to the place of the fire or with the terms *home accidents* or *accident prevention* with no term for the fire component.

MEDLINE	*Housing*[MeSH] AND (*Fires*[MeSH] OR S*moke/adverse effects*[MeSH])

Comment: There are MeSH terms for *housing*, *fires*, and *smoke/adverse effects*. The lost articles were indexed as *accidents, home* with no terms related to fire or they were indexed as *burns, epidemiology* with no reference to the place of the burn or that the burn was a result of a fire or were indexed with the term *smoke/adverse effects* with no term for housing.

Road Rage

Database	Search terms used
PsycINFO	DE *Aggressive driving behavior* OR TX Road rage

Comment: There is a vocabulary term "aggressive driving behavior" but the "lost" articles were indexed with one or more of the terms *driving behavior*, *highway safety* or *transportation accidents* with no mention of aggression, anger or intent or were indexed with *aggressive behavior* or *violence* with no terms to include the transportation component.

MEDLINE	(*Accidents,traffic*[MeSH] OR *Automobile driving*[MeSH]) AND *Rage*[MeSH]) OR "Road rage"[tw]

Comment: There are MeSH terms for *aggression*, *anger*, *rage*, and *violence*. The "lost" articles were assigned any of these terms but without any reference to transportation. Some of the lost articles were assigned the MeSH term, *accidents, traffic* with no terms for the aggression or anger component. Many of the "lost" articles were about driver aggression and rage, had the term "road rage" in the body of the article but not in the title, abstract, or other field where a textword search would find it.

Suicide among adolescents

Database	Search terms used
PsycINFO	(DE *Suicide* OR DE *Suicide prevention* OR DE *Attempted suicide*) AND (TX Adolesc* OR TX Teen OR TX Youth)

Comment: The lost articles were indexed with the broader term *self destructive behavior* and had no index terms related to age group or they were indexed under *adolescent psychopathology* with no terms related to self-harm.

MEDLINE	*Suicide*[MeSH] AND *Adolescent*[MeSH]

Comment: The lost relevant articles were indexed with MeSH terms such as *poisoning* or *wounds, gunshot* without any index term that referred to intent. Other articles were lost when articles that were about suicide and contained much content about adolescents were not indexed with the *adolescent* MeSH term.

In each database for each topic, the results of serial textword searches identified more relevant articles than did the controlled vocabulary term + textword strategies that were constructed by professional reference librarians. The serial textword search results included all of the articles identified through the librarian-constructed strategies. However, the serial textword searches produced many non-relevant articles (Table 7).

Table 7. *Proportion of relevant journal articles found on five IPSP topics in PsycINFO and MEDLINE using serial textword searches (2003-2005).*

Topic	PsycINFO % Relevant	MEDLINE % Relevant
Bicycle-related brain injury	42.7	54.4
Ethanol-impaired driving	58.7	48.1
Residence fires	50.9	37.2
Road rage	62.8	93.6
Adolescent suicide	85.4	88.0

The serial textword searches required a large expenditure of time and effort. For example, the time needed to conduct the serial textword searches in MEDLINE (using the PubMed interface) ranged from 52 minutes for bicycle-related brain injury to 185 minutes for ethanol-impaired driving. These times do not include the time necessary to develop listings of textword synonyms, remove duplicate listings, or find and remove non-relevant items.

The comprehensiveness of a search using a single database for finding IPSP articles on a topic (Study VI)

- What proportion of the pooled contents of EMBASE, MEDLINE and PsycINFO does each database contain on key IPSP topics? (What is missed by consulting only one database?)

The results of the study are shown in table 8 and can be summarized as follows:

- No single database contained all relevant articles on any of the topics.
- The database with the broadest coverage differed by topic.
- Each database contributed unique articles to the total number of available articles on each topic.
- The proportion of articles common to all databases was low (range 5.6% to 16.7%).

Table 8. *Articles available about selected IPSP topics in 4 literature databases, 2005.*

Topic: Total articles - # common to all databases (%)	Database	Articles available	% Total	Unique Articles
Bicycle TBI:	EMBASE	31	60.8	8
51 - 7 (13.7%)	MEDLINE	33	64.7	3
	PsycINFO	16	34.4	2
	WoS	27	52.9	5
Ethanol-Impaired Driving:	EMBASE	96	41.0	27
234 - 39 (16.7%)	MEDLINE	167	71.4	34
	PsycINFO	80	34.2	9
	WoS	141	60.3	28
House Fires:	EMBASE	17	31.5	2
54 - 3 (5.6%)	MEDLINE	26	48.1	3
	PsycINFO	9	16.7	3
	WoS	44	81.5	24
Road Rage:	EMBASE	10	25.0	4
40 - 3 (7.5%)	MEDLINE	16	40.5	7
	PsycINFO	17	42.5	2
	WoS	24	60.0	10
Suicide Among Adolescents:	EMBASE	346	35.8	77
966 - 66 (6.8%)	MEDLINE	667	69.1	217
	PsycINFO	277	28.7	38
	WoS	427	44.2	111

INFORMATION-SEEKING BEHAVIOR

How many separate textword terms are needed to find all articles in the SafetyLit database on particular IPSP topics?

Did the searchers use enough textword synonyms to find the articles?

What databases do IPSP professionals use when they query the literature for journal articles and how do they go about searching?

Textword queries (Study II)

The study of SafetyLit website users addressed two major questions:

- What and how many terms were used when seeking journal articles in SafetyLit?
- How did the searchers' query practices affect the depth, breadth, and quality of the articles found?

The results of the study may be summarized as follows:

- Searchers were not routinely using multiple synonyms when searching for articles on a concept and, therefore, were not finding some of the available articles relevant to their topic.
- During the two-week assessment period, although 4792 searches were recorded, on only seven occasions were two or three different concept synonyms used from the same IP address within the 180 minute time bracket. In no case were four or more synonyms used.
- Each of the 25 most searched-for concepts has 4-40 synonyms.
- In many cases the most-used search term was not the term that would have returned the most articles from the database.

After the removal of duplicates, keyboard errors, place and author names, etc. from the 60 325 terms identified from the SafetyLit server search logs; the 6634 remaining terms were grouped by IPSP concept. A table listing the 25 most frequently queried concepts, their synonym labels, the number of articles found by a search using each synonym, and the percentage of all articles about a concept that may be obtained using each individual synonym is displayed in Appendix 10. Appendix 10 further demonstrates that a query limited to a single textword synonym will return only a subset of the literature contained in the database on the topic. For 18* of the 25 listed concepts, a searcher would need to use two or more synonyms to find 75% or more of the available articles on the concept.

Databases and query behaviors (Study III)

The study of SafetyLit email subscribers addressed two major questions:

- What literature databases are used by IPSP professionals?
- What are database searchers' behaviors and skills?

The survey response rate was 52.6% (n=9957). There were respondents from 173 of the 178 nations represented in the subscriber base. The full subscriber group and the respondents displayed no meaningful differences in geographic placement or World Bank socioeconomic category of their registration country.

As noted in the previous section, the responses of the 87 (0.9%) respondents who identified themselves as librarians and the non-librarians were examined separately. The librarians used more databases, were more confident in their search skills and reported more training in more databases. (See Tables 9 and 10 – Table 10 was not in the original published article) All of the librarians

reported conducting 10 or more searches during the past three months while only 4.7% of the non-librarians searched that frequently.

*(In the article, the abstract incorrectly lists the number as 16, but the body of the report shows the correct number, 18.)

Table 9. *Summary of non-librarian responses to questions about databases searched; self-perception of the knowledge and skills to search; and search training received*

	Last Two Years		Last Search		Knowledge and Skills		Search Training	
Response	N	%*	N	%*	N	%*	N	%*
PubMed	8819	93.9	6941	73.9	8893	94.7	1755	18.7
PsycINFO	1588	16.9	1013	10.8	2141	22.8	359	3.8
Social Science Citation Index	1327	14.1	486	5.2	1512	16.1	147	1.6
Web of Science**	1223	13.0	291	3.1	1437	15.3	332	3.5
Science Citation Index	1215	12.9	385	4.1	1371	14.6	106	1.1
CINAHL	801	8.5	124	1.3	1397	14.9	274	2.9
TRIS	764	8.1	177	1.9	582	6.2	3	0.0
EMBASE	667	7.1	119	1.3	695	7.4	164	1.7
ERIC	606	6.5	308	3.3	1531	16.3	150	1.6
IBSS	432	4.6	82	0.9	244	2.6	36	0.4
Ei Compendex	412	4.4	141	1.5	337	3.6	228	2.4
ISTP	168	2.8	32	0.3	131	1.4	3	0.0
ICONDA	254	2.7	71	0.8	94	1.0	21	0.2
ITRD-IRRD	178	1.9	52	0.6	1503	16.0	2	0.0
SPECTR	103	1.1	48	0.5	113	1.2	1	0.0
ZeTOC	37	0.4	16	0.2	103	1.1	3	0.0
AgeLine	19	0.2	0	0.0	340	3.6	2	0.0
ErgoAbs	11	0.1	0	0.0	242	2.6	0	0.0
EconLit	10	0.1	0	0.0	242	2.6	2	0.0
Other	740	8.0	148	1.6	242	2.6	369	3.9
I did not perform any search	267	2.8	267	2.8				
I have had no training							5419	57.7
Did not answer	115	1.2	126	1.3	709	7.5	1838	19.6

*Percentages do not sum to 100% because multiple selections were allowed.

**The Science Citation Index, and Social Science Citation Index may be searched separately or, if the Web of Science is used, searched simultaneously.

Table 10. *Summary of librarian responses to questions about databases searched; self-perception of the knowledge and skills to search; and search training received*

	Last Two Years		Knowledge and Skills		Search Training	
Response	N	%*	N	%*	N	%*
MEDLINE / PubMed	87	100	87	100	87	100
PsycINFO	87	100	87	100	87	100
Science Citation Index	87	100	87	100	87	100
Social Science Citation Index	87	100	87	100	87	100
Web of Science**	87	100	87	100	87	100
Safety Science & Risk Abstracts	61	70.1	87	100	85	97.7
Ei Compendex	59	67.8	87	100	85	97.7
EMBASE	58	66.7	85	97.7	85	97.7
ERIC	56	64.4	85	97.7	85	97.7
TRIS	55	63.2	85	97.7	80	92.0
ITRD-IRRD	54	62.1	85	97.7	80	92.0
CINAHL	52	59.8	85	97.7	80	92.0
AgeLine	51	58.6	85	97.7	80	92.0
EconLit	48	55.2	85	97.7	80	92.0
IBSS	46	52.9	85	97.7	80	92.0
CISDOC/CISILO	44	50.6	85	97.7	80	92.0
SocAbs	44	50.6	85	97.7	80	92.0
Civil Engineering Abstracts	43	49.4	85	97.7	80	92.0
Health & Safety Science Abstracts	43	49.4	83	95.4	80	92.0
ErgoABS	42	48.3	83	95.4	71	81.6
Mechanical & Transportation Engineering Abstracts	40	46.0	83	95.4	71	81.6
Applied Social Sciences Index	39	44.8	83	95.4	71	81.6
ISTP	37	42.5	83	95.4	71	81.6
ICONDA	36	41.4	83	95.4	71	81.6
Criminal Justice Abstracts	35	40.2	83	95.4	71	81.6
SPECTR	35	40.2	83	95.4	71	81.6
I did not perform any search	0					
I have had no training					0	
Did not answer	0		0		0	

*Percentages do not sum to 100% because multiple selections were allowed.

**The Science Citation Index, and Social Science Citation Index may be searched separately or, if the Web of Science is used, searched simultaneously

Of the 9870 non-librarian survey respondents, 5202 (59.3%) had been involved in some aspect of the IPSP field for five or more years. Knowledge of IPSP

research results was one of their job responsibilities for 8725 (88.4%) respondents and a primary job responsibility for 6869 (69.6%).

Almost all (95.1%) of the non-librarian respondents stated that they always or usually perform literature searches themselves. Of the 433 who always or usually ask someone else to search for them, only 22.6% used a librarian.

Among the non-librarians, only one database – MEDLINE – was used during the past two years by more than 90% of respondents. The other databases were used by fewer than 20% of respondents. On the other hand, all of the librarians reported that they used five of the listed databases during the two-year period.

Many non-librarian respondents (54.1%) did not focus their last literature search by using Boolean operators but all of the librarians did. Although almost all non-librarians (8572, representing 97.7%) stated that they were seeking all available articles on their topic of interest when they conducted their last search, only 846 (10.3%) of respondents reported that they used two or more databases. Seventy-two percent of the librarians said that they used multiple databases for their last literature search.

The most frequently searched literature databases were MEDLINE/PubMed, PsycINFO, Web of Science, CINAHL, TRIS, ERIC and EMBASE. Details of the use of these and other databases are available by consulting the tables in the published article arising from this study.

DISCUSSION

I have yet to see any problem, however complicated, which when you looked at it in the right way, did not become still more complicated.
Poul W. Anderson, quoted by William Thorpe in New Scientist 1969; 43(668):638.

IPSP is a multidisciplinary field without a controlled-vocabulary database specific to its needs. Because of this, IPSP professionals have to collect their information from many far-flung specialties and many profession-specific databases. This thesis has endeavored to examine the breadth of fields involved in IPSP information, the difficulties arising in gathering data from non-IPSP literature databases, and the current state of search techniques and knowledge among information-seekers within the IPSP community.

MAIN FINDINGS

What follows is a discussion of the findings relating to each of the main study questions.

Information and Understanding

What are the important concepts and terms in IPSP?

Technical language or jargon is terminology that relates to a specific activity, group or profession. It is used to express important concepts that are frequently discussed among those working in that profession.[15;16] The use of technical language is one of the factors that distinguish experts from non-experts in a field. Experts in one discipline are unlikely to have sufficient fluency in the concepts and terminologies of other disciplines to be successful in finding reports that are related to their own area of interest by authors in other fields. Specialized dictionaries and glossaries exist for most of these fields, but these (See Appendix 3) focus upon the interests of each discipline, with IPSP issues comprising only a small portion of the concepts included.

Popper's World 3 contains much that has been written about the natural phenomena that exist in his World 1 which are important to the energy transfers that cause injuries. These phenomena and the vectors, vehicles, and mechanisms that facilitate or inhibit the energy transfers have been investigated or described by authors from the thirty-plus disciplines that contribute information to the IPSP field.[18;19] But finding relevant research literature requires knowing the right terms to use when searching numerous electronic and print abstracting services.[10-14]

The publication (October 2005) from Study 1 reported that 8800 injury and safety-related concepts and terms had been gathered from a wide variety of specialized sources. Concept- and term-gathering has continued. As of 1 August 2008, 3511 IPSP concepts and 10,946 total terms have been identified. In addition, 31 more reference sources remain to be searched. These terms provide the nidus of a developing thesaurus for the multidisciplinary field of IPSP. This thesaurus may partially alleviate, in time, part of the physical- and

intellectual-access problems identified in these studies that are related to identifying relevant information. Further, the application of an IPSP thesaurus to a single literature database, such as SafetyLit where information from many disciplines becomes intertwined, has the potential to have a unifying effect. The tendency to view information from other disciplines as outside the realm of one's small world may be diminished if the thesaurus has blurred the language barriers that separate one profession's small world from another's.

Information Sources and Their Function

What are the scholarly journals that publish IPSP-relevant articles and the literature databases that include them?

How easily available are the IPSP articles contained in these journals and databases?

For more than 300 years the scholarly journal has been the essential component in the storage and dissemination of scientific information by serving as the primary means of academic communication. "Science as we know it is scarcely imaginable without the scholarly journal."[334, ePub: paragraph 1] Journal articles are the fundamental building blocks of the structure of scientific knowledge. Throughout the 20th century and into the 21st, there has been a 3% to 6% compound annual growth in the number of scholarly journal articles overall,[45-47;155] and this thesis found that this exponential growth also applies to IPSP-relevant articles. This is not surprising when the many disciplines that contribute to IPSP knowledge – each with its own journals – are considered. No single database includes all years of all of the IPSP-relevant journals.

Samuel Bradford demonstrated in 1934 that each research subject has a few core journals that contain the bulk of relevant articles and that finding relevant articles in other journals requires ever increasing effort.[57] However, in a multidisciplinary field such as IPSP there are likely to be core journals for each specialty and subspecialty within each discipline. Indeed, 597 journals were identified that published at least four journal articles about IPSP subjects per year and these journals were spread broadly over multiple databases, with some databases only including certain years of relevant journals (Study IV). Thus, a searcher must query at least two (and often more than two) databases to examine all years of all relevant journals.

It has been suggested that authors and journal editors should pay close attention to the words that are used in the titles and abstracts of the articles to facilitate indexing and to improve the ability of searchers to find the article using a textword search.[335] It is also clear that indexing can lead a non-expert to make assumptions that are not necessarily true concerning the completeness of index term search results.

When a topic of interest is at the periphery of the focus of a literature database, the usefulness of its controlled vocabulary is compromised because indexers

may not have the right terms to select from or the guidance for indexing may not apply. Complete and effective indexing are clearly important to successful index searches. However, database vocabularies cannot continue to expand to include terms that will satisfy all users, particularly those whose expectations are outside of the main purpose of the database.[335] Conducting useful queries of multiple databases requires knowing the intricacies of each database's search language and protocols. Performing textword searches can, although they are labor intensive and time consuming, be useful because the success of a textword search is not dependent upon knowing arcane search techniques nor are they dependent upon the quality of indexing. However useful, thorough textword searches may be impractical due to the great effort needed to identify all the needed textword terms, conduct the series of searches using them, and to remove duplicate items.

The controlled vocabularies of two of the databases (MEDLINE and PsycINFO) were evaluated in Study V. Searches by professional reference librarians in these two databases returned only partial results on each of the topics, varying in completeness by topic. Completeness was assessed by parallel searches of these databases using serial textword searches. Significant issues of the indexing and the controlled vocabularies were found to contribute to the partial results by keyword searches. This further clarifies the problems facing IPSP professionals when they attempt to get complete information in their field. Clearly, even though needed information is contained in these databases it can be difficult to find. Descriptor-term searches of databases that were specifically built for searchers who work in other specialties do not meet the information-seeking needs of those in IPSP.

From Study V, it is apparent that what seemed clear to the researcher making a search request of librarians was interpreted by them in a consistent manner but in a more limiting way than expected. Thus, those who request the assistance of a librarian should carefully consider how the request is worded so that the desired degree of focus on the topic is well-understood.

The databases that index some of the journals use search vocabularies that are poorly suited to identifying IPSP-relevant articles. Thus, searching by textwords is necessary to identify all articles on a topic in the database.

The continuing tremendous growth in the number of IPSP-relevant journals and journal articles makes it difficult to keep up-to-date, much less to become aware of important research published in the past. It is clear that even when experts search MEDLINE and PsycINFO for IPSP topics that many articles can be missed because the indexing is unsatisfactory for their purpose.

Study VI then used the serial textword search methodology to get around the limitations of controlled vocabulary terms and indexing, and examined four databases on several search topics specifically chosen to draw from disparate parts of the IPSP world. The results clearly demonstrate that, with each selected topic, much literature is lost if any one single database is used and that

different databases are better suited for some topics than others. Yet, few searchers use more than one database when searching a topic. Thus, because the key IPSP literature is spread across many databases, they are likely to be limiting the scope of their search to publications from only a few of the professional disciplines that produce relevant research.

Indeed, other researchers have found that searching beyond familiar literature databases and seeking evidence from a wide variety of study types and sources is essential in the fields of social interventions,[162;336] human factors and ergonomics,[337] school violence,[338] occupational safety,[339] and economic risk assessment[340]. Although it is possible that, for very highly specialized IPSP projects, an exhaustive search using multiple databases may not always be necessary, a broad search will probably always be useful. This is because each of the 30-plus professional disciplines have their own professional journals, and sometimes these journals publish ''cross-over'' material – that is, an engineering journal may publish an article that describes the effect of risk-taking by drivers and the implications this may have for the design of vehicles or roadways. A limited search is not likely to find these potentially important articles.

Information-Seeking Behavior

How do IPSP professionals search for articles and what training have they had in search techniques?

Before beginning a project or establishing a policy there are both ethical and scientific reasons why a thorough literature search should be conducted. From an ethical point of view, the World Medical Association's Declaration at Helsinki stipulates that any research on human subjects should ''be based on a thorough knowledge of the scientific literature".[341, Section B, Paragraph 11] Among the various scientific and practical benefits to be derived from a good review are: getting inspiration (e.g., ideas, perspectives, and approaches); finding alternative instruments or procedures; foreseeing potential instrumental or methodological pitfalls; and identifying peers and potential collaborators.[342] Other benefits include avoiding unnecessary replication of experiments and knowledge already in the literature, planning for necessary replications, gathering relevant theories, models, and research methods, and identifying potential confounder variables.

That said, there are physical, psychological, and social issues that can (and often do) intervene to block an information-seeker's ability or willingness to conduct a thorough literature search. Although these cannot be used with certainty to explain the literature search behavior of IPSP professionals in general, researchers in the LIS field have linked the issues to the behaviors of searchers working in other fields.

On the other hand, as Calvin Mooers pointed out, where the need for information is high enough even fundamentally poor database search systems will be well used.[317] When compared with that of other databases the SafetyLit search system – used as a source for the search behavior investigations herein – is crude yet is used by thousands of searchers each week. Perhaps because of the great effort needed to conduct a thorough search of the SafetyLit archive, uncertainty about the scope of the textwords needed to find all relevant articles, or overconfidence in their own ability to use the SafetyLit search system; most searchers do not do what is necessary to find all of the available articles contained in the database.

Observed information-seeking behavior

- Few searchers use two or more textword synonyms when searching a topic. Thus, their searches do not produce a complete listing of the articles on their topic of interest.
- Few searchers use aids such as Boolean operators that could improve the relevance of their results.
- Searchers used only one or two textword terms when they searched for articles in the SafetyLit archive. Textword searches are highly particular and focused – that is, a textword search returns only articles that contain the exact word or phrase entered. Clearly, textword searchers are not using enough synonyms.

The problem of incomplete searching also exists when searches are performed in databases other than SafetyLit.

Self-reported information-seeking behavior

- Over 90% of SafetyLit users also perform searches of other online databases and that, although few have had any training in search techniques, they always or usually perform the search themselves. Their searches in other databases are performed using a wide variety of online bibliographic databases but only 10.3% queried two or more databases the last time they searched. Almost all (93.9%) respondents have used the bio-medicine database MEDLINE but other databases are seldom used. For instance, the next most frequently used database, PsycINFO was used by only 16.9%.
- Although most respondents said that they were seeking all articles on their topic of interest the last time they searched, limiting their query to one or two databases diminished the effectiveness of their query and can lead to major losses.
- Non-librarians are not conducting comprehensive searches even when they think that they are.

As noted above there are several reasons that may contribute to less-than-thorough searching:

Physical access: Information-seekers may not have physical access to the databases they need. Many of the important databases (Appendix 4) require an expensive subscription for access and even large universities do not typically subscribe to all important IPSP databases. When a database is available it only provides access to metadata – information that potentially useful articles exist. Before searchers can be certain that an article is useful they must examine it to assess its relevance to their needs. Again, a library must have a subscription to the journal in print or electronic form before any article may be found and read. If information-seekers perceive that a database or the journals it contains are not easily accessible, they may dismiss the information that is contained in the database or journal as unimportant simply because it isn't readily available.(276;287;289)

Even when information-seekers have physical access there are social and psychological issues that can restrict the information that is available to them.

Information can only exist as a usable resource if it is accessible, and it is only accessible if all the appropriate metadata are correct and in place – title, author, publication name and year, volume and page numbers, etc. Without these vital metadata, the article's content "however valuable in itself, may be rendered functionally worthless."(343, p. 11)

Intellectual access: Important information can be at hand but if its relevance is not apparent it will not be recognized as useful. This issue is closely tied to the problems of technical language and jargon discussed above and will be further discussed below. Information-seekers must be able to understand the information that has been found before they can use it.(241) Some of this may be resolved through use of the associative functions of a well-designed thesaurus and its proper use by indexers.

Social access and disciplinarity: Chatman's small worlds model helps to explain socially- and self-imposed restrictions to information that might otherwise be available. There are two issues: 1) the information-seeking practices of members of a small world are not likely to differ much among members and 2) the type of information that meets (or does not meet) the small world's normative standards of propriety affects its acceptability. Small world members who use information-seeking practices that differ much from the norm or who gather information from unapproved sources may be socially typed as a threat to other members.(246;285;287)

The understanding and use of technical language is one of the factors that distinguish experts from non-experts in a field.(9) Members of one profession (a small world) recognize that their use of the jargon of another profession (a different small world) can create problems both from others within their small world and from those in the other professions. When the jargon of another profession is used by a member of a small world other members of the small world may treat the user with suspicion of being an outsider. Similarly, the use

of the jargon of a profession by outsiders can be considered by insiders to be audacious, since it could constitute a claim to membership of the insider group. Those unfamiliar with a subject can often be ridiculed if they use jargon incorrectly. At best, the use of the technical language of another profession isn't likely to be well-received. Because of the multidisciplinary nature of IPSP there are many small world specialty groupings within the field of IPSP. Thus, experts in one discipline are unlikely to have sufficient fluency in the concepts and terminologies of other disciplines to be successful in finding reports by authors in other fields that are related to their area of interest. Some of this social access issue may be resolved through a thesaurus with well-designed term equivalency relationships.

A person's perception of his or her knowledge plays an important role in influencing information-seeking behavior and individuals may be less likely to thoroughly seek information on a topic they feel knowledgeable about. Indeed, this perceived knowledge has been found to be more important than actual knowledge when forming plans and acting to search for information.[322-324] Conducting a literature search using only familiar sources can lead to a failure to access essential information published by researchers in parallel fields. Thus, just as researchers must use caution to avoid selection bias when finding groups for epidemiologic research, it is important to make certain that we do not provide ourselves a distorted view of the full body of knowledge by culling information from a self-limited selection of databases and thus, journal articles.[344]

Competency theory: The survey of IPSP information-seekers reported in Study III showed that non-librarian searchers had little training in how to use even common databases. Yet, despite reporting less-than thorough search behaviors, respondents said that they have the necessary knowledge and skills to conduct a thorough search and they were satisfied with the results of their searches. Competency theory provides a way to understand this disconnection between actual search skills and search performance. Under competency theory, people who are not competent in a skill will overestimate their capabilities because their incompetence deprives them of the objectivity to recognize their limitations.[254;256] This problem is likely reinforced by the apparent simplicity of the computer forms used to enter query terms and by the satisfyingly large number of articles that are often returned.

Models of individual and social behavior that were discussed in the Background section illustrate potential reasons why scholars do not exert the effort needed to conduct thorough literature searches. For example, Competency Theory may partially explain the finding in study III that IPSP professionals who have had little or no training in literature database skills nonetheless either conduct their own searches or, when they ask others to search for them, they do not seek the help of a librarian. Further, they express full satisfaction with the results of their searches.[234] Most people "do not persevere in catalog searches."[345, p. 69] "Most seekers after information will prefer easily available information of lesser quality to that which is more

difficult to reach, even though it may be of higher quality….If access to the original [document] will be difficult, [seekers will] rationalize that it is probably of limited value anyway, and hence not worth the trouble of pursuit."[346, p. 192]

Principle of least effort: The principle of least effort when applied to information-seeking suggests that searchers will tend to use the most convenient and familiar search methods and in the least exacting mode necessary to obtain acceptable results.[300-302] This seems to apply to the finding that IPSP searchers tend to use PubMed (a no-cost database with a very simple standard query screen) almost exclusively.

While Mooers suggested that if professionals have a sufficient need or desire for information even a poor search system will be used (and certainly the opposite is also true – that professionals who don't have a desire for information will not use even a well-designed search system), his work also suggests that a good search system will be of great benefit to those who have a desire for complete information.[317] Such a system can be designed to allow even novice users to conduct searches that provide needed information. If the database has a suitable controlled vocabulary that contains all the synonyms necessary to form a comprehensive search from a query using any one of the synonyms, searchers who use little effort can nonetheless achieve good results.

"Some areas of public health practice, such as immunization or screening …can readily be studied using conventional…methods of systematic [literature] reviews. However, systematic reviews of more complex public health interventions are more methodologically challenging."[162, p. 804] A naive researcher may conclude that a search results listing is comprehensive when, in fact, the listing may be grossly incomplete. The results of this thesis suggest that IPSP professionals are not conducting literature searches using all of the tools and resources available to them. This thesis should raise an awareness among those who search the literature for IPSP material that retrieving a focused and comprehensive listing of relevant articles requires thoughtful planning and thorough investigation of all of the terms that may be applied to the concepts of interest.

A thorough search of the literature is important. An incomplete literature search may result in a distorted interpretation of the body of research on a topic.[344] Decisions that are based on incomplete information are poorly informed and may waste time, work effort, and money, especially if that information is gathered from a few familiar sources using only search terms that are familiar. Poor decision-making can block interventions needed to prevent injuries, disabilities, and deaths.[347] At best, poor decision-making is likely not only to delay implementation of useful projects but also to diminish the resources available for proper interventions after unsound projects fail.[348;349]

Searching the literature can seem straightforward but in reality it is not.

FUTURE RESEARCH AND OTHER POTENTIAL

Clearly, there is much here that may be of interest for LIS researchers:

- Applying Bradford Scattering theory to IPSP journals;
- Using the small worlds theory to model information-seeking in IPSP; or
- Examining the information-seeking behaviors of those seeking grey literature in IPSP.

There are many other possibilities for LIS research because IPSP information-seekers have not been researched beyond the studies that comprise this thesis. Although that research may be of interest to LIS, from the IPSP perspective there is little need for further research at this time unless to satisfy curiosity. Perhaps similar work will be of benefit later to assess if changes have occurred. What is needed now is to address the problems identified in this thesis to improve information access for the IPSP field.

There is an adage, "If you want it done right use the right tool for the right job". Right now, there does not seem to be a right tool for information-seeking within the IPSP field. It seems likely that IPSP professionals would benefit from a database with a focus upon the issues that are important to the field and one which indexes its contents with terms from a controlled vocabulary developed for IPSP. "The quality of [a search] vocabulary [and the preferred term synonyms it includes] can substantially affect the recall performance of an information retrieval system."[350, p. 49] Although the SafetyLit database has an IPSP focus, its contents are not indexed. The time needed to perform a thorough textword search is substantial and a searcher must have access to a comprehensive listing of textword synonyms for each topic of interest. A thesaurus of IPSP concepts is under development but is several years from being ready to be used as a source of indexing terms for SafetyLit. Completing that thesaurus and using it to apply index terms to the contents of SafetyLit is my next major goal.

OVERARCHING LIMITATIONS OF THE STUDIES

Besides the limitations disclosed in each individual study (see the included reprints of the publications) a few overarching ones ought to be raised.

The unending nature of data

The major limitation of Study I is that it is inherently and permanently incomplete. The process of conducting this inventory will continue indefinitely because unfound older concepts will continue to be discovered and new concepts will be identified. New sources for information will be found, from which to draw more concepts and terms.

Arbitrary thresholds

Study IV used a cutoff point of four IPSP-related articles per year. This was an entirely arbitrary decision in order to keep the table size manageable. The number of articles published per year and the proportion of IPSP articles compared with the total number of articles published provides only part of the picture. Some journals, such as BMJ and JAMA, may publish fewer articles, but they are likely to be very important ones. A quantitative assessment of the impact of the journals listed was not addressed. Inclusion of an impact metric such as the proprietary ISI Impact Factor ratings was rejected for several reasons: (1) although impact factor measures may be relevant for the journals that devote most of their content to IPSP, the overall impact factor for other journals may have little relevance to the impact of the IPSP-related articles published in them; (2) impact factor measurements are not available for many of the journals listed in this report; (3) the listed measures (mean number of articles published per year and the proportion of total articles that are IPSP relevant) are more stable and, perhaps, a more useful guide for making a decision about whether to subscribe to a journal.

Instructions in requests and in surveys

Many tasks and situations involve the presentation of some form of instructional information to the person attempting the task. Whether in the survey questionnaire or the instructions to the librarians who constructed search strategies, words were used to convey specific ideas. Although the instructions intended to guide the librarians work and the survey questionnaire were tested before they were distributed, the final test is the way the words are interpreted by the recipients.

Following instructions actually consists of two separate steps.[351] First, a procedure or plan for doing the task must be created by using the instruction information and relevant prior knowledge. Second, this constructed procedure must be applied to the actual task. The level of performance that is achieved is a result of the success of both of these component steps. That is, if the person doing the task fails to extract an adequate procedure from the instructional information, it is unlikely that he or she will be able to perform the task as expected by the creator of the instruction set.[352]

The use of plain language to provide specific guidance to the librarians in Study V communicated the same message to each of the five participants but it was not the message that was intended. The librarians priority became the "focused" part of the instructions with less attention paid to the "comprehensive" part.

The questionnaire used in Study III was pilot tested but that does not mean that it is valid or reliable. The questionnaire was used once so the issue of reliability isn't important. Validity – does the questionnaire measure what the researcher intends it to measure – is of concern. Respondents were asked to

report their behavior, training, and self-assessed skill level. With a survey of this kind there is always the possibility that the questionnaire measures not what the respondents do or believe but what they *say* that they do and believe. That potential problem is a shortcoming of any self-report survey.

Convenience samples

Convenience sampling (sometimes called opportunity sampling) is a non-probability sampling process used when it isn't practical or possible to use a more rigorous method of subject selection from the study population. Members of a convenience sample are selected primarily because they are available. The consequence is that an unknown portion of the population is excluded and there is no way to assess the sample's representativeness. Little is known about the study population except that they seek information on IPSP from literature databases (the key factor in the definition). Without the extraordinary effort and expense of identifying everyone who seeks IPSP information – an essentially impossible task – and learning what matters about them – a second impossible task – a probability sample from the population couldn't be selected. Although there were many respondents to the survey and many queries made of the SafetyLit database, the size of the convenience samples tells nothing of their representativeness.

Heterogeneity and nonspecificity of the target population

The IPSP field is heterogeneous with professionals from more than 30 disciplines publishing relevant material. Professionals from some of these disciplines may not even think of their work as relevant to IPSP. The information needs of these professionals may make them more (or less) vulnerable to the information-seeking problems that are described in this thesis. Professionals from some disciplines may have more (or less) difficulty accepting knowledge that was developed in another discipline. The research presented herein did not address these issues.

The population under examination in Study II was all persons in the field of IPSP who use literature databases when they search for articles published in scholarly journals. A detailed description of the population is all but impossible.

The focus on scholarly journal articles

The studies presented in this thesis focused upon information-seeking in scholarly journals. Although scholarly journals are fundamental to scientific communication there are other information sources that may be equally or more useful depending upon the information-seeker's needs. For example, a purchaser of safety equipment such as bicycle helmets may simply need to review the performance standard for helmets and compare it with the performance tests for the products under consideration. The studies of this thesis have little application to that situation.

The issues discussed herein may or may not have application to searches of the grey literature. However, other researchers have found that the effort needed to find relevant information in the journal literature is much less than that required to find it in the grey literature.[353;354] Therefore, it is likely that the issues raised by the studies in this thesis represent a best case when compared to those of searching the grey literature. It must be stressed that the grey literature must not be ignored. Others have found that information sources beyond journal articles are essential when conducting a systematic review.[162;354;355]

CONCLUSIONS

The studies in this thesis provided six perspectives on the issues involved in finding useful material within the body of scientific knowledge relevant to IPSP. The studies highlight the difficulties involved in gathering information in a multidisciplinary field such as IPSP. By identifying several problems it should be possible to begin to develop plans for solving them.

Information and understanding:

- At least 30 professional disciplines contribute to what is known on IPSP topics but there is no standard vocabulary and a single concept can have many terms.
- There are at least 3 500 concepts relevant to IPSP and most of these are known by different synonymous (or semi-synonymous) terms. When conducting a textword search it is necessary to use all of the synonyms for each concept to assure all relevant articles are found.

Information sources and their function:

- There are many IPSP-relevant journal articles published in many journals.
- The number of IPSP-relevant articles published each year is increasing.
- There are many journal databases and journal coverage differs by database. Each of these databases is designed for the interests of its primary target users and each database has its own search vocabulary designed to facilitate queries by its primary users.
- No single literature database indexes all scholarly journals that publish articles relevant to IPSP. Thus, it is necessary to search more than one database if information from all relevant disciplines is desired.
- The databases that index some of the journals use search vocabularies that are poorly suited to identifying IPSP-relevant articles. Thus, searching by textwords is necessary to identify all articles on a topic in the database.

Information-seeking behavior:

- Few searchers use two or more textword synonyms when searching a topic. Thus, their searches do not produce a complete listing of the articles on their topic of interest.
- Few searchers use aids such as Boolean operators that could improve the relevance of their results.
- Few searchers use more than one database when searching a topic. Thus, because the key IPSP literature is spread across many databases,

they are likely to be limiting the scope of their search to publications from only a few of the professional disciplines that produce relevant research.

- IPSP information-seekers are not conducting comprehensive searches even when they think that they are.
- IPSP searchers are systematically limiting the scope of their queries by using only familiar terms and databases.

This thesis suggests that a potentially large proportion of IPSP professionals may hold a biased view of both the full nature of injury problems and the options for prevention. If the early stages of the research or planning process are flawed by a lack of information, progress towards solutions can be slowed or even blocked. A thesaurus that is under development when completed and used with a comprehensive literature database such as SafetyLit may resolve some of the information-seeking problems for the field.

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My supervisor, mentor, committee members, and other leaders

Lucie Laflamme, my supervisor. In everyone's life there are a few people – parents, a schoolteacher – who make a real difference in their development. Usually these people are encountered in childhood. Before I met and worked with Lucie I never would have thought that someone could have that effect on me – a man in his mid-50s – again. Yet, I've observed that she also has had a similar influence on my fellow students. I could write hundreds of words that detail Lucie's contribution to my personal and professional development but in summary, her influence has changed my life for the better.

Barry Pless, my formal mentor. Barry's work in IPSP publishing is well known. For me, his true value has been as a challenging skeptic. Before my time at Karolinska Institutet he wrote to me more than ten times with criticisms, questions, and suggestions about the content of SafetyLit.

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My family

Meg, my wife, my everything.

My mother who taught me at a very young age when I was asking, "Why?"; that there are real differences between "why," "how," and "what".

My father who supported my curiosity by arranging visits to the local electric generating station, water works, dairy and creamery, soft drink bottling plant, rice mill and drier, and other interesting places. He read to me at an early age and always positioned me where I could follow the words. I learned to read sitting on his lap.

Lee, my older brother. He showed me improvisation by building things, models, a realistic-looking full size television camera out of a shipping box, a coffee can, a carpet roll, a tent post, and a discarded tea cart.

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From my childhood

Mrs. Landreneaux, my pre-kindergarten teacher and an anonymous insect from the order Odonata that injured a wing upon the wire of a rabbit hutch. At age 4, my observation of that injury led me to realize two things: the supernatural world didn't exist and it was in my interest to pretend that I still believed that it did. From the torn wing I realized that the "tooth fairy" couldn't safely get into homes to place a coin under a pillow. Upon thinking about the rabbit, I lost the Easter bunny fantasy. I lost Santa Claus. Within the span of a minute or two I lost superstition. Moments later, I realized that I needed to play along – I liked getting chocolate Easter eggs and Christmas presents from Santa Claus. That afternoon I learned both skepticism and cynicism. I've never been the same since. As I sat down and stared into space, I alarmed Mrs. Landreneaux. Thinking that I was ill she asked me what was the matter. "I'm thinking…I'm just thinking," I replied. When I refused to say what I was thinking about, she called my parents, sent me home and wouldn't let me return. I was four years old and expelled from kindergarten. She taught me that although it is important to think, it is often as important to hide that process from others.

My first grade teacher, Mrs. Catlett. Despite my hyperactivity and having learned to read at home, she taught me things – most importantly, she showed me that school could be a very good thing.

Mrs. Stelly, a substitute teacher one spring day during my third grade. She was well intentioned and articulate but not quite right. One day, instead of our lessons she talked about parasites, "nasty worms," as she called them. She warned us about ever eating any pork product or any type of liver. She cautioned about walking bare-footed outside on any surface except pavement lest the worms crawl inside our bodies between our toes or under our toe nails. She explained that once we were "afflicted with worms" we would need to drink nasty medicine and take stinky baths each day for five years. I didn't believe it and detoured on my walk home to the local library to investigate. I had been exposed to "the Lookies" (far-too-cute cartoon characters in advertisements for an encyclopedia company) and followed their motto, "We never guess; we look it up."(358) In spite of my utter distaste for the cartoon characters I really became enamored with idea of being empowered through finding needed information and reading it.

Mrs. Jo Roberts, a distant cousin and the local librarian who allowed me to stay although the rules said children weren't allowed at the library until they had completed the third grade. She showed me how to look up information about parasites in an encyclopedia. I asked if I could see any encyclopedia other than the World Book, the encyclopedia that used the Lookie ads. She must have been amused by my request because she called my mother to let her know that my walk home would be a little delayed. (I noticed that she didn't ask my mom for permission.) My world expanded. For years I stopped at the library on my way home from school. Often, I just browsed to see what books were there.

My fourth grade teacher, Mrs. Bazerque. During my first three years of school, all of my education had been rote memory exercises. In her class I was expected to think. As a reward for something I said one day, she gave me her nice Parker fountain pen. (I was most decidedly NOT her favorite – whatever I said must have been pretty good). I wish that I could remember what I said. Before that I had only used pencils and ball point pens. Everyone in class had admired that pen and hoped that they would receive it as a prize. I treasured that pen until it went missing more than 15 years later. Mrs. Bazerque provided me with the reinforcement that school could be a good place and with good people.

As an adult

Dottie Clemmer and Janet Rice, professors at the Tulane University School of Public Health. I attended Tulane because I wanted to learn about the public health approach to injury prevention. Dottie taught the one injury class that was offered. I had started my masters program with the naive idea that by becoming an expert in public health education that I could successfully help to prevent injuries and promote safety. She shoved me in the direction of epidemiology instead. I loved the epidemiology methods courses I took. Janet taught several of my biostatistics courses. She was always available to students for their questions – even more than 15 years after I received my masters degree at Tulane she was willing to provide advice about the sampling issues related to my survey of SafetyLit email subscribers.

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Sandy Bonzo, a librarian at the U.S. Centers for Disease Control and Prevention. During the mid-1990s she organized an electronic mailing list and circulated selected listings of newly published injury-related article titles from MEDLINE. The service she provided ended too soon. However, I felt the loss and when I could I created SafetyLit to fill the vacuum.

Janice Yuwiler, director of the California Center for Childhood Injury Prevention. She retired and hired me as her replacement. She saved me from the frustrations of government work in Louisiana. She set the stage that allowed me the freedom to establish SafetyLit as a small literature update service for childhood injury prevention specialists California. As the scope of my center expanded to cover all age groups, so did SafetyLit.

Anne Turhollow, head of reference services at the San Diego State University library. She assisted with recruiting the librarians who participated in my Study V and with developing the instructions for constructing the search strategies.

Les Fisher, the archivist for the Injury Control and Emergency Health Services section within the American Public Health Association, who not only compiled

a detailed history of injury prevention but also scoured an index to the American Journal of Public Health for injury-related articles. His compilation led me to wonder about how the citation patterns of those articles changed over the years. I spent many hours thinking of him while I was hand-searching copies of the journal and examining each IPSP-relevant article's reference list. Les' work helped show me the value of what has come before.

APPENDICES

APPENDIX 1: INJURIES AS A PUBLIC HEALTH PROBLEM

The fact that injuries are not often considered as a public health problem is one of the reasons they are a public health problem.
Leon S. Robertson, Injuries: Causes, Control Strategies, and Public Policy[356, p. 1)]

Injuries are the leading cause of death, disability, and hospitalization from early childhood to middle age in most of the developed world. In the developing world, although diseases and nutritional deficiencies are responsible for a greater proportion of deaths, in absolute numbers injuries remain a leading cause of mortality and disability.[357] Each year, injuries are responsible for more than 5 million deaths worldwide.[358]

Injury prevention and safety promotion

While it is seldom possible to prevent all events (vehicle crashes, falls, etc.) that have potential to cause injury, it is often possible to prevent these things from causing serious harm. Individuals and communities can prevent injuries through knowledge of risks, sensible behaviors, and the use of safe, well-designed products and environments.

William Haddon, Jr., in his landmark essay, *On the escape of tigers: An ecologic note*, proposed ten countermeasures to limit the consequences of exposure to energy.[359] These are:

- Prevent the creation or initial aggregation of the energy hazard;
- Reduce the amount of energy created or aggregated;
- Prevent the release of a hazard that already exists;
- Alter the rate or spatial distribution of any energy release from its source;
- Separate, in time or space, the hazard from that which is to be protected
- Interpose a material barrier to separate the hazard from that which is to be protected;
- Modify the contact surfaces or basic structures that can be impacted;
- Improve the resilience of the living or nonliving structures susceptible to damage by the energy transfer;
- Rapidly detect and assess any damage and prevent its continuation or extension;
- Stabilize, repair, and rehabilitate the object of the damage.

One or more of these logically derived strategies must be sensibly adapted and applied in each risk situation. The application of countermeasures, in terms of acceptability, feasibility and practicality, must be determined through knowledge from many disciplines. This knowledge may be considered a protective factor against making uninformed and incorrect decisions about preventive action. Without exposure to important information the likelihood of making proper decisions is clearly diminished.

APPENDIX 2: IPSP JOURNALS AND THEIR DATABASES

Appendix 2: Journals that publish IPSP-relevant material, the years of publication, the mean number and proportion of relevant items published per year (1950-2006) and years included in selected literature databases.

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Injury Prevention (1995-Now)	85.8	!!!!!	– 0 –	2007-Now	1995-Now	1995-Now	2002-Now
International Journal of Injury Control and Safety Promotion (2005-Now)	75.0	!!!!!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
- Injury Control and Safety Promotion (2000-2004)	41.6	!!!!!	– 0 –	– 0 –	2002-2004	2002-2004	– 0 –
- International Journal for Consumer and Product Safety (1998-1999)	40.0	!!!!!	– 0 –	– 0 –	– 0 –	1998-1999	– 0 –
- International Journal for Consumer Safety (1994-1997)	27.0	!!!!!	– 0 –	– 0 –	– 0 –	1994-1997	– 0 –
Child Abuse and Neglect (1977-Now)	74.4	!!!	1979-Now	1980-Now	1982-Now	1977-Now	1984-Now
Engineering Failure Analysis (1994-Now)	71.0	!!	– 0 –	– 0 –	– 0 –	1994-Now	1995-Now
Transportation Research Record (1974-Now)	66.4	!!	– 0 –	– 0 –	– 0 –	1974-Now	1998-Now
- Highway Research Record (1963-1973)	23.6	!	– 0 –	– 0 –	– 0 –	1963-1973	– 0 –
- Highway Research Board Bulletin (1946-1962)	16.0	!	– 0 –	– 0 –	– 0 –	1950-1962	– 0 –
Accident Analysis and Prevention (1969-Now)	61.1	!!!!!	1973-Now	1969-Now	1985-Now	1969-Now	1975-Now
Transportation Human Factors (1999-2000)	59.0	!!!!	– 0 –	– 0 –	– 0 –	1999-2000	– 0 –
Traffic Injury Prevention (2002-Now)	57.3	!!!!!	2002-Now	– 0 –	2002-Now	2002-Now	– 0 –
- Crash Prevention and Injury Control (1999-2001)	20.0	!!!!!	– 0 –	– 0 –	– 0 –	1999-2001	– 0 –
Natural Hazards and Earth System Sciences (2001-Now)	53.7	!!!	– 0 –	– 0 –	– 0 –	2001-Now	2004-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Safety Science (1991-Now)	52.9	!!!!	1991-Now	– 0 –	– 0 –	1991-Now	1991-Now
- Journal of Occupational Accidents (1976-1990)	26.7	!!!	1976-1990	– 0 –	– 0 –	1976-1990	1976-1990
Journal of Burn Care and Research (2006-Now)	47.0	!!	– 0 –	– 0 –	2006-Now	2006-Now	2006-Now
- Journal of Burn Care and Rehabilitation (1980-2005)	7.4	!	1989-2005	– 0 –	1985-2005	1980-2005	1998-2005
Aggressive Behavior (1974-Now)	43.3	!!!	– 0 –	1974-Now	2007-Now	1974-Now	1976-Now
Brain Research (1966-Now)	43.1	!	1966-Now	1970-Now	1966-Now	1966-Now	1969-Now
Brain Research: Cognitive Brain Research (1992-2005)	42.4	!	1992-2005	– 0 –	1992-2005	1992-2005	1992-2005
Fire Safety Journal (1980-Now)	40.6	!!!	– 0 –	– 0 –	– 0 –	1980-Now	1980-Now
- Fire Research (1977-1979)	5.3	!!!	– 0 –	– 0 –	– 0 –	1977-Now	– 0 –
Blutalkohol (1961-Now)	40.1	!!!!	1974-Now	– 0 –	1984-1996	1961-Now	– 0 –
Journal of Trauma (1961-Now)	35.3	!	1965-Now	– 0 –	1961-Now	1961-Now	1966-Now
Aggression and Violent Behavior (1996-Now)	34.9	!!!	1996-Now	1996-Now	– 0 –	1996-Now	1996-Now
Violence and Victims (1986-Now)	34.8	!!	– 0 –	1986-Now	1986-Now	1986-Now	– 0 –
Suicide and Life Threatening Behavior (1976-Now)	33.3	!!!	1976-Now	1976-Now	1976-Now	1976-Now	1976-Now
- Suicide (1975-1975)	26.0	!!!	1975	1975	1975	1975	1975
- Life Threatening Behavior (1971-1974)	24.0	!!!	1974	1971-1974	1974	1971-1974	1971-1974
Disasters (1977-Now)	33.2	!!	– 0 –	– 0 –	1994-Now	1977-Now	1977-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Emergency Medicine Journal (2001-Now)	32.9	!	2001-Now	– 0 –	2001-Now	2001-Now	2001-Now
- Journal of Accident and Emergency Medicine (1994-2000)	32.8	!	1994-2000	– 0 –	1994-2000	1994-2000	1994-2000
- Archives of Emergency Medicine (1984-1993)	17.4	!	1984-1993	– 0 –	1984-1993	1984-1993	1984-1993
Journal of Safety Research (1969-Now)	31.9	!!!!	1972-Now	1969-Now	2002-Now	1969-Now	1969-Now
Journal of Fire and Flammability (1970-1982)	31.7	!	– 0 –	– 0 –	– 0 –	1970-1982	1977-1982
International Journal of Industrial Ergonomics (1986-Now)	31.6	!	1995-Now	2005-Now	– 0 –	1986-Now	1994-Now
Journal of Wuhan University of Technology-Transportation (1959-Now)	31.0	!!!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
Annual Proceedings of the Association for Advancement of Automotive Medicine (1994-Now)	30.9	!!!!!	– 0 –	– 0 –	2000-Now	1994-Now	– 0 –
- Proceedings: Association for Advancement of Automotive Medicine Annual Conf (1988-1993)	38.2	!!!!!	– 0 –	– 0 –	– 0 –	1988-1993	– 0 –
- Proceedings: American Association for Automotive Medicine Annual Conference (1957-1987)	31.8	!!!!!	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Archives of Suicide Research (1995-Now)	30.7	!!!	1997-Now	2005-Now	2004-Now	1995-Now	1996-Now
Earthquake Engineering and Structural Dynamics (1972-Now)	30.1	!!!	– 0 –	– 0 –	– 0 –	1995-Now	1977-Now
Journal of Family Violence (1986-Now)	28.8	!!!!	– 0 –	1986-Now	– 0 –	1986-Now	1991-Now
Cognition, Technology and Work (1999-Now)	28.3	!	– 0 –	– 0 –	– 0 –	1999-Now	– 0 –
Youth Violence and Juvenile Justice (2003-Now)	28.3	!!	– 0 –	2005-Now	– 0 –	2003-Now	– 0 –
Crisis (1980-Now)	27.9	!!	– 0 –	1983-Now	1985-Now	1980-Now	2005-Now
Journal of School Violence (2002-Now)	27.8	!!!!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
Transportation Research Part F: Traffic Psychology and Behaviour (1998-Now)	27.4	!!!!!	– 0 –	1998-Now	– 0 –	1998-Now	2004-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Behavioral Research in Highway Safety (1970-1971)	27.3	!!!!!	– 0 –	– 0 –	– 0 –	1970-1971	– 0 –
BMC Public Health (2001-Now)	27.0	!!	2001-Now		2001-Now	2001-Now	2001-Now
Journal of Interpersonal Violence (1986-Now)	27.0	!!	– 0 –	1986-Now	2003-Now	1986-Now	1991-Now
Pediatrics (1948-Now) [1950 forward]	26.6	!	1965-Now	– 0 –	1948-Now	1948-Now	1948-Now
Journal of Consumer Product Flammability (1976-1982)	26.5	!!!	– 0 –	– 0 –	– 0 –	1976-1982	1977-1982
Fire and Materials (1976-Now)	26.4	!!	– 0 –	– 0 –	– 0 –	1976-Now	1978-Now
Canadian Journal of Criminology and Criminal Justice (2003-Now)	26.3	!!!	– 0 –	– 0 –	– 0 –	2003-Now	2004-Now
- Canadian Journal of Criminology (1978-2002)	9.2	!!!	– 0 –	– 0 –	– 0 –	1978-2002	1978-2002
- Canadian Journal of Criminology and Corrections (1971-1977)	6.2	!!	– 0 –	– 0 –	– 0 –	1973-1977	1973-1977
Ciencia e Saude Coletiva (1996-Now)	26.3	!!	– 0 –	– 0 –	2007-Now	2005-Now	– 0 –
Clinical Toxicology [T&FG] (2005-Now)	26.3	!	2005-Now	– 0 –	2005-Now	2005-Now	2005-Now
- Journal of Toxicology. Clinical Toxicology (1982-2004)	17.2	!	1982-2004	– 0 –	1982-2004	1982-2004	1982-2004
- Clinical Toxicology [Dekker] (1968-1981)	17.6	!	1970-1981	– 0 –	1970-1981	1970-1981	– 0 –
International Review of Psychiatry (1989-Now)	26.3	!	1991-Now	1989-Now	2003-Now	1989-Now	1995-Now
Journal of Fire Sciences (1983-Now)	26.3	!!	– 0 –	– 0 –	– 0 –	1983-Now	1983-Now
Mass Emergencies (1975-1979)	26.1	!	– 0 –	– 0 –	– 0 –	1975-1979	1975-1979
Stapp Car Crash Journal (2000-Now)	26.0	!!!!!	– 0 –	– 0 –	2000-Now	2000-Now	– 0 –
- Proceedings: Stapp Car Crash Conference (1955-1999)	24.7	!!!!	– 0 –	– 0 –	– 0 –	1995-1999	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Earthquake Spectra (1985-Now)	25.1	!!!	– 0 –	– 0 –	– 0 –	2003-Now	2002-Now
Journal of Structural Engineering (1983-Now)	24.6	!	– 0 –	– 0 –	– 0 –	1983-Now	1983-Now
Annals of Emergency Medicine (1980-Now)	24.4	!	1980-Now	– 0 –	1980-Now	1980-Now	1980-Now
- Journal of the American College of Emergency Physicians JACEP (1972-1979)	18.0	!	– 0 –	– 0 –	1976-1979	1972-1979	1978-1979
Fire Technology (1965-Now)	24.0	!!!	– 0 –	– 0 –	– 0 –	1969-Now	1983-Now
Crime Prevention and Community Safety (1999-Now)	23.7	!!	– 0 –	1999-Now	– 0 –	1999-Now	– 0 –
Burns: Journal of the International Society for Burn Injuries (1989-Now)	23.3	!!	1989-Now	– 0 –	1990-Now	1997-Now	1989-Now
- Burns, Including Thermal Injury (1974-1988)	9.8	!!	1974-1988	– 0 –	1982-1988	– 0 –	1977-1988
Physica A: Statistical Mechanics and its Applications (1975-Now)	23.3	!	– 0 –	– 0 –	– 0 –	2004-Now	1975-Now
Natural Hazards [Springer] (1988-Now)	23.0	!!	– 0 –	– 0 –	– 0 –	1996-Now	1994-Now
International Journal of Crashworthiness (1996-Now)	22.8	!!!	– 0 –	– 0 –	– 0 –	1996-Now	2001-Now
Disaster Management and Response (2003-Now)	22.3	!!	– 0 –	– 0 –	2003-Now	2003-Now	– 0 –
- International Journal of Trauma Nursing (1995-2002)	5.0	!	– 0 –	– 0 –	1995-2002	1995-2002	– 0 –
Violence Against Women (1995-Now)	22.3	!!!!	– 0 –	1995-Now	2005-Now	1995-Now	2001-Now
Homicide Studies (1997-Now)	22.2	!!!	– 0 –	1999-Now	– 0 –	1997-Now	2005-Now
African Safety Promotion (2002-Now)	21.8	!!!!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
ITE Journal (1978-Now)	21.7	!!!	– 0 –	– 0 –	– 0 –	1995-Now	1978-Now
Psychiatria Danubina (1989-Now)	21.2	!!	1989-Now	1991-Now	2005-Now	1989-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Human Factors and Aerospace Safety (2001-Now)	21.1	!!!	– 0 –	2001-Now	– 0 –	2001-Now	– 0 –
Vehicle System Dynamics (1972-Now)	21.0	!!!!	– 0 –	– 0 –	– 0 –	1972-Now	1977-Now
Disaster Prevention and Management (1992-Now)	20.7	!!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Ergonomics (1957-Now)	20.6	!!	1965-Now	1957-Now	1965-Now	1961-Now	1957-Now
Journal of Aggression, Maltreatment and Trauma (1997-Now)	20.5	!!	2000-Now	1998-Now	– 0 –	1997-Now	– 0 –
Journal of Forensic Nursing (2005-Now)	20.3	!!	– 0 –	2005-Now	2005-Now	2005-Now	– 0 –
Psychiatria Hungarica: A Magyar Pszichiatriai Tarsasag Tudomanyos Folyoirata (1986-Now)	20.3	!!!	1999-Now	1990-Now	2005-Now	1990-Now	– 0 –
Journal of Applied Fire Science (1991-Now)	20.0	!!!	– 0 –	– 0 –	– 0 –	1995-Now	– 0 –
International Journal of Mass Emergencies and Disasters (1983-Now)	19.5	!!	– 0 –	– 0 –	– 0 –	1983-Now	– 0 –
Trauma Violence and Abuse (2000-Now)	19.4	!!!	– 0 –	2000-Now	2003-Now	2000-Now	– 0 –
IATSS Research (1977-Now)	19.3	!!!!	– 0 –	– 0 –	– 0 –	1977-Now	– 0 –
International Journal of Disaster Medicine (2003-Now)	19.3	!!	2005-only	– 0 –	– 0 –	2003-Now	– 0 –
Injury (1969-Now)	18.8	!	1970-Now	– 0 –	1970-Now	1969-Now	1973-Now
- Injury Extra [online supplement] (2003-Now)	7.7	!	– 0 –	– 0 –	– 0 –	2003-Now	– 0 –
Archives of Pediatrics and Adolescent Medicine (1994-Now)	18.4	!	1994-Now	– 0 –	1994-Now	1994-Now	1994-Now
- American Journal of Diseases of Children (1960-1993)	13.9	!	1965-1993	– 0 –	1960-1993	1960-1993	1960-1993
- AMA Journal of Diseases of Children (1956-1960)	4.1	!	– 0 –	– 0 –	1956-1960	1956-1960	1956-1960
- AMA American Journal of Diseases of Children (1950-1955)	4.2	!	– 0 –	– 0 –	1950-1955	1950-1955	1950-1955

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Gait and Posture (1993-Now)	18.4	!!	1994-2006	– 0 –	1999-Now	1998-Now	1997-Now
Human Factors (1958-Now)	18.4	!!	1965-Now	1958-Now	1962-Now	1958-Now	1958-Now
Child Maltreatment (1996-Now)	18.3	!!!!	– 0 –	1996-Now	2000-Now	1996-Now	2004-Now
Feminist Criminology (2006-Now)	18.3	!!	– 0 –	2006-Now	– 0 –	2006-Now	– 0 –
Public Library of Science-Medicine (2004-Now)	18.3	!	2001-Now	– 0 –	2004-Now	2004-Now	2004-Now
Alcohol, Drugs and Driving (1985-1995)	17.8	!!!!!	– 0 –	– 0 –	– 0 –	1985-1995	– 0 –
Journal of Traffic Medicine (1973-2001)	17.8	!!!!!	1975-2001	– 0 –	– 0 –	1973-2001	– 0 –
Consciousness and Cognition (1992-Now)	17.3	!!	1995-Now	1992-Now	1995-Now	1992-Now	1992-Now
Criminology and Criminal Justice (2001-Now)	17.3	!!	– 0 –	2001-Now	– 0 –	2006-Now	– 0 –
Journal of Sexual Aggression (1994-Now)	17.3	!!!!	– 0 –	1999-Now	– 0 –	1994-Now	– 0 –
Psicothema (1989-Now)	17.3	!!	– 0 –	1992-Now	2006-Now	1992-Now	1993-Now
International Journal of Adolescent Medicine and Health (1985-Now)	17.1	!!	1985-Now	1985-Now	2002-Now	1985-Now	– 0 –
International Journal of Offender Therapy and Comparative Criminology (1972-Now)	16.9	!!	1991-Now	1972-Now	2002-Now	1972-Now	1973-Now
Journal of Adolescent Health (1991-Now)	16.7	!!	1991-Now	1991-Now	1991-Now	1991-Now	1991-Now
- Journal of Adolescent Health Care (1980-1990)	8.3	!	1980-1990	1982-1990	1990	1980-1990	1982-1979

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
Addiction (1993-Now)	16.6	!	1993-Now	1993-Now	1993-Now	1993-Now	1993-Now
- British Journal of Addiction (1980-1992)	4.1	!	1980-1992	1980-1992	1980-1992	1980-1992	1980-1992
- British Journal of Addiction to Alcohol and Other Drugs (1947-1979) [1950 forward]	4.7	!	1973-1979	1971-1979	1972-1979	1966-1979	1956-1979
- British Journal of Inebriety	—	!	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Journal of Agricultural Safety and Health (1995-Now)	16.4	!	– 0 –	– 0 –	2000-Now	1995-Now	– 0 –
IEEE Transactions on Intelligent Transportation Systems (2000-Now)	16.3	!!	– 0 –	– 0 –	– 0 –	2000-Now	2001-Now
Journal of Primary Prevention (1981-Now)	16.3	!	1981-Now	1982-Now	2005-Now	1981-Now	– 0 –
- Journal of Prevention [0163-514X] (1980-1981)	9.2	!	– 0 –	– 0 –	– 0 –	1980-1981	– 0 –
Quarterly Journal of Experimental Psychology [1747-0218] (2006-Now)	16.3	!	– 0 –	2006-Now	2006-Now	2006-Now	2006-Now
- Quarterly Journal of Experimental Psychology: A (1981-2005)	4.0	!	1981-1989	– 0 –	1981-2005	1981-2005	1981-2005
Fire Journal (1965-1990)	16.2	!!	– 0 –	– 0 –	Selectively[§]	1980-1988	1983-1990
Transport (2002-Now)	16.0	!	– 0 –	– 0 –	– 0 –	2004-Now	– 0 –
Journal of Hazardous Materials (1976-Now)	15.8	!	1976-Now	– 0 –	1999-Now	2003-Now	1977-Now
Proceedings: ASME, Safety Engineering and Risk Analysis Division (1991-Now)	15.6	!!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Public Health Reports [ASPH] (1974-Now)	15.6	!	1974-Now	– 0 –	1974-Now	1974-Now	1974-Now
American Journal of Preventive Medicine (1985-Now)	15.5	!	1985-Now	1989-Now	1985-Now	1985-Now	– 0 –
Journal of the American Academy of Child and Adolescent Psychiatry (1987-Now)	15.5	!	1987-Now	1987-Now	1987-Now	1987-Now	1987-Now
- Journal of the American Academy of Child Psychiatry (1962-1986)	10.2	!	– 0 –	1966-1986	1966-1986	1966-1986	1962-1986

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
American Journal of Public Health (1912-Now) [1950 forward]	15.3	!	1971-Now	1991-Now	1912-Now	1912-Now	1945-Now
British Medical Journal: BMJ (1857-Now) [1950 forward, including Clinical Research Edition]	15.3	!	1964-Now	2000-Now	1949-Now	1945-Now	1900-Now
Criminal Justice Policy Review (1986-Now)	15.3	!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Journal of Fire Protection Engineering (1989-Now)	15.0	!!!!	– 0 –	– 0 –	– 0 –	2001-Now	– 0 –
Journal of Transportation Engineering (1983-Now)	15.0	!!	– 0 –	– 0 –	– 0 –	1983-Now	1983-Now
- ASCE Transportation Engineering Journal (1969-1982)	9.8	!	– 0 –	– 0 –	– 0 –	1976-1982	– 0 –
Crime, Media, Culture (2005-Now)	14.8	!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Applied Ergonomics (1969-Now)	14.5	!	1974-Now	1971-Now	1997-Now	1969-Now	1969-Now
Key Engineering Materials (1986-Now)	14.3	!	– 0 –	– 0 –	– 0 –	2004-Now	1994-Now
Personality and Individual Differences (1980-Now)	14.1	!	– 0 –	1980-Now	– 0 –	1980-Now	1980-Now
Chronobiology International (1984-Now)	14.0	!	1984-Now	1984-Now	1984-Now	1984-Now	1986-Now
Criminal Justice and Behavior (1974-Now)	13.6	!!	– 0 –	1974-Now	– 0 –	1974-Now	1974-Now
Fathering (2003-Now)	13.6	!	– 0 –	2003-Now	– 0 –	2003-Now	– 0 –
International Journal of Vehicle Safety (2005-Now)	13.5	!!!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Prehospital and Disaster Medicine (1989-Now)	13.4	!!	– 0 –	– 0 –	1990-Now	1990-Now	– 0 –
- Journal of the World Association for Emergency and Disaster Medicine (1985-1988)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Emergency Medicine Australasia (2004-Now)	13.3	!	– 0 –	– 0 –	2004-Now	2004-Now	– 0 –
- Emergency Medicine [Blackwell] (1987-2003)	6.6	!	– 0 –	– 0 –	2001-2003	2001-2003	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
MMWR: Morbidity and Mortality Weekly Report (1952-Now)	12.2	!	– 0 –	– 0 –	1981-Now	1964-Now	– 0 –
International Journal of Aviation Psychology (1991-Now)	12.0	!!	– 0 –	1991-Now	Selectively§	1991-Now	1995-Now
Journal of the American Water Resources Association (1997-Now)	13.3	!	– 0 –	– 0 –	– 0 –	1997-Now	1997-Now
Reliability Engineering and System Safety (1988-Now)	13.0	!!	– 0 –	– 0 –	– 0 –	1988-Now	1988-Now
- Reliability Engineering (1980-1987)	11.6	!!	– 0 –	– 0 –	– 0 –	1980-1987	1981-1987
Journal of Child and Adolescent Psychopharmacology (1990-Now)	11.6	!	1994-Now	1990-Now	1996-Now	1990-Now	1993-Now
Journal of Epidemiology and Community Health (1979-Now)	11.6	!	1979-Now	1979-Now	1979-Now	1979-Now	1979-Now
- Journal of Epidemiology and Community Medicine (1978)	4.0	!	1978	1972-1978	1978	1978	1978
- British Journal of Preventive and Social Medicine (1953-1977)	4.7	!	– 0 –	– 0 –	1953-1977	1953-1977	1961-1977
- British Journal of Social Medicine (1947-1952) [1950 forward]	3.8	!	– 0 –	– 0 –	1950-1952	1950-1952	– 0 –
Roczniki Panstwowego Zakladu Higieny (1950-Now)	11.6	!	1965-Now	– 0 –	1950-Now	1950-Now	– 0 –
Social Policy and Society (2002-Now)	11.6	!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
Journal of the College of Physicians and Surgeons – Pakistan: JCPSP (1991-Now)	11.4	!	1997-Now	– 0 –	2003-Now	1997-Now	– 0 –
Vision Research (1961-Now)	11.4	!!	1973-Now	– 0 –	1961-Now	1961-Now	1961-Now
Academic Emergency Medicine (1994-Now)	11.3	!	1994-Now	– 0 –	1994-Now	1994-Now	1995-Now
Acta Seismologica Sinica [English Edition] (1988-Now)	11.2	!	– 0 –	– 0 –	– 0 –	2003-Now	– 0 –
International Journal of Vehicle Design (1979-Now)	11.2	!!	– 0 –	– 0 –	– 0 –	1979-Now	1979-Now
Evidence-Based Mental Health (1979-Now)	11.1	!	– 0 –	– 0 –	2001-Now	2005-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
International Journal of Heavy Vehicle Systems (2004-Now)	11.1	!!!	– 0 –	– 0 –	– 0 –	2004-Now	2004-Now
- Heavy Vehicle Systems (1993-2004)	9.4	!!	– 0 –	– 0 –	– 0 –	1993-2003	1999-2003
International Journal of Occupational Safety and Ergonomics (1995-Now)	11.1	!!!	1996-Now	– 0 –	1999-Now	1995-Now	2006-Now
Journal of Toxicology and Environmental Health: Part A (1998-Now)	11.1	!!	1998-Now	– 0 –	1998-Now	1998-Now	1998-Now
- Journal of Toxicology and Environmental Health (1975-1997)	8.9	!	1975-1997	– 0 –	1975-1997	1975-1997	1975-1997
Medicine and Sport Science (1984-Now)	11.1	!!	– 0 –	– 0 –	2005-Now	1984-Now	– 0 –
- Medicine and Sport (1968-1982)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Collision: The International Compendium for Crash Research (2006-Now)	11.0	!!!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Dental Traumatology (2001-Now)	10.9	!	– 0 –	– 0 –	2001-Now	2001-Now	2001-Now
- Endodontics and Dental Traumatology (1985-2000)	7.1	!	– 0 –	– 0 –	1985-Now	1985-Now	1987-2000
Brief Treatment and Crisis Intervention (2001-Now)	10.8	!	– 0 –	2001-Now	– 0 –	2001-Now	– 0 –
Perception (1972-Now)	10.8	!!	1972-Now	1972-Now	1972-Now	1972-Now	1973-Now
Journal of Science and Medicine in Sport (1998-Now)	10.7	!	1998-Now	– 0 –	1998-Now	1998-Now	2001-Now
- Australian Journal of Science and Medicine in Sport (1984-1997)	6.3	!	1984-Now	– 0 –	1995-1997	1984-Now	– 0 –
Criminal Behaviour and Mental Health (1991-Now)	10.7	!!	1992-Now	1991-Now	2002-Now	1991-Now	– 0 –
Journal of Studies on Alcohol and Drugs (2007-)	—	—	2007-Now	2007-Now	2007-Now	2007-Now	2007-Now
- Journal of Studies on Alcohol (1975-2006)	10.7	!	1975-2006	1975-2006	1975-2006	1975-2006	1975-2006
- Quarterly Journal of Journal of Studies on Alcohol (1940-1974) [1950 forward]	11.4	!	– 0 –	1940-1974	1949-1974	1940-1974	1942-1974

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Adolescent Medicine-State of the Art Reviews (2007-)	—	—	– 0 –	– 0 –	2007	2007	– 0 –
- Adolescent Medicine Clinics (2004-2006)	10.6	!	– 0 –	– 0 –	2004-2006	2004-2006	– 0 –
- Adolescent Medicine (1990-2003)	9.2	!	– 0 –	– 0 –	1998-2003	1990-2003	– 0 –
Beijing Gongye Daxue Xuebao (1974-Now)	10.6	!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
BMJ Clinical Evidence (2007-)	—	!	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
- Clinical Evidence (1999-2006)	10.6	!	– 0 –	– 0 –	2001-2006	2004-2006	– 0 –
Journal of Adolescence (1978-Now)	10.6	!	1978-Now	1981-Now	1978-Now	1978-Now	1978-Now
Journal of Alcohol and Drug Education (1972-Now)	10.6	!!	– 0 –	1972-Now	– 0 –	1972-Now	1974-2000
- Journal of Alcohol Education (1966-1971)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Journal of Immigrant and Minority Health (2006-Now)	10.6	!	2006-Now	2006-Now	2006-Now	2006-Now	– 0 –
- Journal of Immigrant Health (1999-2005)	8.8	!	1999-2005	2000-2005	2003-2005	1999-2005	– 0 –
Journal of Loss Prevention in the Process Industries (1988-Now)	10.6	!	– 0 –	– 0 –	– 0 –	1988-Now	1988-Now
Torture (1991-Now)	10.6	!!!	– 0 –	– 0 –	2006-Now	2004-Now	– 0 –
Crime and Delinquency (1960-Now)	10.3	!!	1975-1980	1967-Now	– 0 –	1960-Now	1960-Now
Journal of Child Sexual Abuse (1992-Now)	10.2	!!!	1992-Now	1992-Now	2001-Now	1992-Now	– 0 –
Social Science and Medicine [1982] (1982-Now)	10.2	!	1982-Now	1982-Now	1982-Now	1982-Now	1982-Now
- Social Science and Medicine [Multiple Specialty Journals] (1978-1981)	8.5	!	1978-1981	1978-1981	1978-1981	1978-1981	1978-1981
- Social Science and Medicine (1967-1977)	6.5	!	1968-1977	1969-1977	1968-1977	1968-1977	1967-1977

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
Traffic Safety Research Review (1957-1968)	10.2	!!!!!	– 0 –	– 0 –	– 0 –	1957-1968	– 0 –
Journal of Clinical Sleep Medicine (2005-Now)	10.1	!	2005-Now	– 0 –	2005-Now	2005-Now	– 0 –
Bulletin of Earthquake Engineering (2003-Now)	9.9	!!	– 0 –	– 0 –	– 0 –	– 0 –	2005-2007
Criminal Justice (2001-2005)	9.9	!!	– 0 –	– 0 –	– 0 –	2001-2005	– 0 –
Forensic Science International (1978-Now)	9.9	!!	1978-Now	– 0 –	1978-Now	1978-Now	1979-Now
- Forensic Science (1972-1978)	10.2	!!	– 0 –	– 0 –	Selectively[§]	1973-1978	1973-1978
Journal of Public Health [Oxford] (2004-Now)	9.9	!	2004-Now	2005-Now	2004-Now	2004-Now	2004-Now
- Journal of Public Health Medicine (1990-2003)	4.6	!	1990-2003	– 0 –	1990-2003	1990-2003	1990-2003
- Community Medicine (1979-1989)	4.6	!	1979-1989	– 0 –	1979-1989	1979-1989	1986-1989
Scandinavian Journal of Public Health (1999-Now)	9.9	!	1999-Now	– 0 –	1999-Now	1999-Now	1999-Now
- Scandinavian Journal of Social Medicine (1973-1998)	6.4	!	1973-1998	– 0 –	1973-1998	1973-1998	1973-1998
- Acta Socio-Medica Scandinavica (1969-1972)	5.3	!	– 0 –	– 0 –	1969-1972	1969-1972	1970-1972
Journal of Affective Disorders (1979-Now)	9.7	!	1998-2007	1979-Now	1979-Now	1979-Now	1979-Now
Behavior Research Methods (2005-Now)	9.6	!	– 0 –	1968-Now	2005-Now	2005-Now	2005-Now
China Railway Science (1979-Now)	9.6	!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Chinese Journal of Industrial Hygiene and Occupational Diseases (1983-Now)	9.6	!	– 0 –	– 0 –	2002-Now	2002-Now	– 0 –
Journal of Intelligent Transportation Systems (2004-Now)	9.6	!!	– 0 –	– 0 –	– 0 –	2004-Now	2006-Now
- Intelligent Transportation Systems Journal (1993-2003)	8.2	!!	– 0 –	– 0 –	– 0 –	1993-2003	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
Journal of the Transportation Research Forum (2004-Now)	9.6	!!	– 0 –	– 0 –	– 0 –	2004-Now	2004-Now
- Transportation Quarterly (1982-2003)	8.5	!	– 0 –	– 0 –	– 0 –	1982-2003	1982-2003
- Traffic Quarterly (1947-1981) [1950 forward]	4.2	!	– 0 –	– 0 –	– 0 –	1960-1981	1956-1981
Mount Sinai Journal of Medicine, New York (1970-Now)	9.6	!	1970-Now	– 0 –	1970-Now	1970-Now	1970-Now
- Journal of the Mount Sinai Hospital, New York (1934-1969) [1950 forward]	4.1	!	– 0 –	– 0 –	1950-1969	1950-1969	1968-1969
NeuroRehabilitation (1991-Now)	9.6	!	1996-Now	1995-Now	2001-Now	1995-Now	1995-Now
Philosophical Transactions. Series A (1996-Now)	9.6	!	– 0 –	– 0 –	Selectively[§]	1996-Now	1996-Now
School Psychology International (1979-Now)	9.6	!!	– 0 –	1979-Now	– 0 –	1979-Now	1994-Now
Turkish Journal of Trauma and Emergency Surgery (2003-Now)	9.6	!	2005-Now	– 0 –	2003-Now	2003-Now	– 0 –
- Ulusal Travma Dergisi (1995-2002)	5.0	!	– 0 –	– 0 –	2001-2002	2001-2002	– 0 –
Urban Affairs Review (1995-Now)	9.6	!	– 0 –	– 0 –	– 0 –	1995-Now	1995-Now
- Urban Affairs Quarterly (1965-1994)	6.1	!	– 0 –	– 0 –	– 0 –	1965-1994	1965-1994
Criminology and Public Policy (2001-Now)	9.4	!!	– 0 –	– 0 –	– 0 –	2001-Now	– 0 –
Anales del Sistema Sanitario de Navarra (1997-Now)	9.3	!	1999-Now	– 0 –	2003-Now	2002-Now	– 0 –
Traffic Engineering and Control (1960-Now)	9.3	!!	– 0 –	– 0 –	– 0 –	1960-Now	1977-1980
- International Road Safety and Traffic Review (1953-1967)	12.0	!!!!	– 0 –	– 0 –	– 0 –	1955-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Australian and New Zealand Journal of Public Health (1996-Now)	9.2	!	1996-Now	– 0 –	1996-Now	1996-Now	1996-Now
- Australian Journal of Public Health (1991-1995)	8.4	!	1991-1995	– 0 –	1991-1995	1991-1995	1991-1995
- Community Health Studies (1977-1990)	4.0	!	1978-1990	– 0 –	1983-1990	1977-1990	1977-1990
American Journal of Forensic Medicine and Pathology (1980-Now)	9.2	!	1980-Now	– 0 –	1980-Now	1980-Now	1980-Now
Traffic Engineering (1937-1977) [1950 forward]	9.2	!	– 0 –	– 0 –	– 0 –	1950-1977	1977
British Journal of Sports Medicine (1969-Now)	9.1	!	1974-Now	– 0 –	1974-Now	1977-Now	1993-Now
Current Opinion In Psychiatry (1988-Now)	9.1	!	1988-Now	2001-Now	2006-Now	2005-Now	1995-Now
Japanese Journal of Toxicology (1987-Now)	9.1	!!	– 0 –	– 0 –	2001-Now	2001-Now	– 0 –
Journal of Community Psychology (1973-Now)	9.1	!!	– 0 –	1973-Now	Selectively§	1973-Now	1981-Now
Journal of Elder Abuse and Neglect (1989-Now)	9.1	!!!	– 0 –	2000-Now	2006-Now	1989-Now	1994-2005
Psychiatria et Neurologia Japonica (1935-Now) [1950 forward]	9.1	!	1976-1988	– 0 –	1963-Now	1963-Now	– 0 –
European Journal of Public Health (1991-Now)	9.0	!	1997-Now	2001-Now	2001-Now	1991-Now	1997-Now
Clinical Journal of Sport Medicine (1991-Now)	8.9	!	1993-Now	– 0 –	1995-Now	1995-Now	1995-Now
Journal of Urban Health (1998-Now)	8.9	!	1998-Now	– 0 –	1998-Now	1998-Now	1998-Now
- Bulletin of the New York Academy of Medicine (1925-1997) [1950 forward]	6.6	!	1975-1997	– 0 –	1949-1997	1945-1997	1945-1997
Men and Masculinities (1998-Now)	8.8	!	– 0 –	1999-Now	– 0 –	1999-Now	2006-Now
Road and Transport Reseaerch (1992-Now)	8.8	!!	– 0 –	– 0 –	– 0 –	1992-Now	– 0 –
Visual Cognition (1994-Now)	8.8	!!	2000-Now	1994-Now	– 0 –	1994-Now	1996-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of Forensic and Legal Medicine (2007-)	—	—	2007-Now	– 0 –	2007-Now	2007-Now	– 0 –
- Journal of Clinical Forensic Medicine (1994-2006)	8.7	!!	1994-2006	– 0 –	2004-2006	1994-2006	– 0 –
Alcohol Research and Health (1999-Now)	8.6	!	– 0 –	1999-Now	1999-Now	1999-Now	1999-Now
- Alcohol Health and Research World (1973-1998)	7.0	!	– 0 –	1985-1998	Selectively§	1997-1998	1994-1998
Anales de Pediatria (Doyma) (2003-Now)	8.6	!	2003-Now	– 0 –	2003-Now	2003-2007	2003-2006
- Anales Espanoles de Pediatria (1968-2002)	8.1	!	– 0 –	– 0 –	Selectively§	1974-2002	1974-2002
Archives of Women's Mental Health (1998-Now)	8.6	!	2000-Now	1998-Now	2002-Now	2002-Now	2005-Now
BMC Family Practice (2000-Now)	8.6	!	2000-Now	– 0 –	2000-Now	2005-Now	– 0 –
Family Violence Prevention and Health Practice (2005-Now)	8.6	!!!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Health Promotion Journal of Australia (1991-Now)	8.6	!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
International Journal of Emergency Management (2003-Now)	8.6	!!	2003-Now	– 0 –	– 0 –	2003-Now	– 0 –
International Journal of Vehicle Modelling and Testing (2005-Now)	8.6	!!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Journal of Adolescent Research (1986-Now)	8.6	!	– 0 –	1986-Now	– 0 –	1986-Now	1994-Now
Journal of Early Adolescence (1981-Now)	8.6	!	– 0 –	1981-Now	– 0 –	1981-Now	1995-Now
Journal of Marital and Family Therapy (1979-Now)	8.6	!	1979-Now	1979-Now	1997-Now	1979-Now	1979-Now
- Journal of Marriage and Family Counseling (1975-1978)	7.4	!	– 0 –	1975-1978	– 0 –	1975-1978	1977-1978
Journal of Mental Health Policy and Economics (1998-Now)	8.6	!	2002-Now	1999-Now	2002-Now	1999-Now	2005-Now
Substance Abuse Treatment, Prevention, and Policy (2006-Now)	8.6	!	– 0 –	– 0 –	2006-Now	2006-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
World Psychiatry (2002-Now)	8.6	!	– 0 –	– 0 –	2002-Now	2002-Now	– 0 –
Journal of Applied Social Psychology (1971-Now)	8.6	!	– 0 –	1971-Now	– 0 –	1971-Now	1971-Now
Journal of the Australasian College of Road Safety (2005-Now)	8.5	!!!!!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Journal of Occupational and Environmental Medicine (1995-Now)	8.5	!	1995-Now	2005-Now	1995-Now	1995-Now	1995-Now
- Journal of Occupational Medicine (1959-1994)	8.8	!	1965-1994	– 0 –	1959-1994	1959-1994	1974-1994
Medical Journal of Australia (1914-Now) [1950 forward]	8.5	!	1965-Now	– 0 –	1949-Now	1945-Now	1945-Now
Acta Psychiatrica Scandinavica (1961-Now)	8.4	!	1965-Now	1963-Now	1961-Now	1990-Now	1961-Now
Analyses of Social Issues and Public Policy (2001-2006)	8.4	!	– 0 –	2001-2006	– 0 –	2001-2006	– 0 –
Archiwum Medycyny Sadowej i Kryminologii (1968-Now)	8.4	!	1974-1983	– 0 –	2002-Now	2000-Now	– 0 –
Social Psychiatry and Psychiatric Epidemiology (1988-Now)	8.4	!	1988-Now	1988-Now	1988-Now	1988-Now	1988-Now
- Social Psychiatry (1966-1987)	8.4	!	– 0 –	1966-1987	1983-1987	1966-1987	1968-1987
Cochrane Database of Systematic Reviews (1996-Now)	8.3	!	– 0 –	– 0 –	2000-Now	2000-Now	2005-Now
Gaceta Sanitaria (1987-Now)	8.3	!	– 0 –	– 0 –	1987-Now	1987-Now	– 0 –
Adolescence (1966-Now)	8.2	!	1973-Now	1966-Now	1974-Now	1966-Now	1966-Now
Death Studies (1985-Now)	8.2	!	1985-Now	1985-Now	Selectively§	1985-Now	1985-Now
- Death Education (1977-1984)	6.0	!	– 0 –	1977-1984	1977-1984	1977-1984	1977-1984
Journal of Experimental Psychology: Human Perception and Performance (1975-Now)	8.2	!!	– 0 –	1975-Now	1975-Now	1975-Now	1975-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Studies in Conflict and Terrorism (1992-Now)	8.2	!!!	– 0 –	1992-Now	– 0 –	1992-Now	2006-Now
- Terrorism (1977-1991)	7.4	!!!	– 0 –	1985-1991	– 0 –	1977-1991	1977-1991
- Conflict (1978-1991)	7.9	!	– 0 –	– 0 –	– 0 –	1978-1985	1978-1985
CNS Spectrums (1996-Now)	8.1	!	1998-Now	2003-Now	2003-Now	2005-Now	2003-Now
International Journal of Impact Engineering (1983-Now)	8.1	!!	– 0 –	– 0 –	– 0 –	1983-Now	1988-Now
Pediatric Emergency Care (1985-Now)	8.1	!	1985-Now	– 0 –	1985-Now	1985-Now	1992-Now
Zhongguo Gonglu Xuebao-China Journal of Highway and Transport (1988-Now)	8.1	!!	– 0 –	– 0 –	– 0 –	1998-Now	– 0 –
Armed Forces and Society (1974-Now)	8.0	!	– 0 –	– 0 –	– 0 –	1977-Now	– 0 –
Hazard Prevention: Journal of System Safety (1969-Now)	8.0	!!!	– 0 –	– 0 –	– 0 –	1983-Now	– 0 –
Journal of the American Geriatrics Society (1953-Now)	8.0	!	1965-Now	1967-Now	1953-Now	1953-Now	1956-Now
Journal of Transportation Systems Engineering and Information Technology (2006-Now)	8.0	!!!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Terrorism and Political Violence (1989-Now)	8.0	!!!	– 0 –	2006-Now	– 0 –	1998-Now	2002-Now
Deviant Behavior (1979-Now)	7.9	!!!	– 0 –	1981-Now	– 0 –	1979-Now	1979-Now
Lancet (1823-Now) [1950-forward]	7.9	!	1961-Now	2001-Now	1949-Now	1900-Now	1900-Now
Social Behavior and Personality (1973-Now)	7.9	!	– 0 –	1973-Now	– 0 –	1973-Now	1973-Now
Zhongguo Wei Zhong Bing Ji Jiu Yi Xue-Chinese Critical Care Medicine (1989-Now)	7.9	!	2006-Now	– 0 –	2003-Now	2003-Now	– 0 –
Acta Medicinae Legalis et Socialis (1948-1994) [1950 forward]	7.8	!	– 0 –	– 0 –	1952-1994	1950-1994	– 0 –
American Journal of Industrial Medicine (1980-Now)	7.8	!	1980-Now	– 0 –	1980-Now	1985-Now	1983-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of Research in Crime and Delinquency (1964-Now)	7.8	!!!	1976-Now	1971-Now	– 0 –	1964-Now	1964-Now
Journal of Forensic Sciences (1956-Now)	7.7	!	1965-Now	2006-Now	1961-Now	1961-Now	1977-Now
Psychological Reports (1955-Now)	7.7	!	1965-Now	1955-Now	1965-Now	1955-Now	1956-Now
Acta Astronautica (1974-Now)	7.6	!!	– 0 –	– 0 –	1974-2005	2006-Now	1974-Now
Aeronautical Journal (1968-Now)	7.6	!!	– 0 –	– 0 –	– 0 –	2002-Now	1968-Now
Archives of Iranian Medicine (1998-Now)	7.6	!	2002-now	– 0 –	2006-Now	2006-Now	– 0 –
Current Psychiatry Reports (1999-Now)	7.6	!	1999-Now	– 0 –	1999-Now	2006-Now	– 0 –
Health Statistics Quarterly [England] (1999-Now)	7.6	!	– 0 –	– 0 –	2004-Now	2004-Now	– 0 –
Journal of Emergency Nursing (1975-Now)	7.6	!	– 0 –	– 0 –	1975-Now	1975-Now	2005-Now
Journal of the American Academy of Orthopaedic Surgeons (1993-Now)	7.6	!	– 0 –	– 0 –	1998-Now	2000-Now	2004-Now
Journal of the American Board of Family Medicine (2006-Now)	7.6	!	2006-Now	– 0 –	2006-Now	2006-Now	2006-Now
- Journal of the American Board of Family Practice (1988-2005)	4.1	!	1988-2005	– 0 –	1988-2005	1988-2005	2003-Now
Journal of Biological Rhythms (1985-Now)	7.6	!	1985-Now	1986-Now	1986-Now	1985-Now	1988-Now
Journal of Family Psychology (1987-Now)	7.6	!	– 0 –	1987-Now	2000-Now	1987-Now	1995-Now
Journal of Occupational Rehabilitation (1991-Now)	7.6	!	1996-Now	1991-Now	2001-Now	1991-Now	1994-Now
Journal of Women's Health [1540-9996] (2002-Now)	7.6	!	2002-Now	2002-Now	2002-Now	2002-Now	2002-Now
- Journal of Women's Health and Gender-Based Medicine (1999-2002)	4.6	!	1999-2002	1992-2002	1999-2002	1999-2002	1999-Now
- Journal of Women's Health [1059-7115] (1992-1999)	4.2	!	1992-1999	– 0 –	1997-1999	1992-1999	1997-1999

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of Jilin Univ-Engineering & Technology [Jilin Daxue Xuebao Gongxueban] (2002-Now)	7.6	!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
Nigerian Journal of Clinical Practice (1998-Now)	7.6	!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
Nordic Journal of Psychiatry (1999-Now)	7.6	!	1999-Now	1999-Now	2001-Now	1999-Now	1999-Now
- Nordisk Psykiatrisk Tidsskrift / Nordic Journal of Psychiatry (1959-1998)	5.5	!	1992-1998	1974-1998	1961-Now	1974-1998	1993-1998
Psychologie and Neuropsychiatrie du Vieillissement (2003-Now)	7.6	!	2003-Now	2004-Now	2003-Now	2003-Now	– 0 –
Turkish Journal of Psychiatry (1990-Now)	7.6	!	– 0 –	– 0 –	2003-Now	1992-Now	– 0 –
Canadian Journal of Psychiatry (1979-Now)	7.5	!!	1979-Now	1979-Now	1979-Now	1992-Now	1979-Now
- Canadian Psychiatric Association Journal (1956-1978)	6.7	!	– 0 –	1961-1978	1956-1978	1974-1977	1966-1978
Contemporary Nurse (1992-Now)	7.4	!	– 0 –	– 0 –	1992-Now	2002-Now	– 0 –
Aging Clinical and Experimental Research (2002-Now)	7.3	!	1990-Now	– 0 –	2002-Now	2004-Now	2002-Now
- Aging (1989-2001)	4.9	!	– 0 –	– 0 –	1989-2001	1989-2001	1992-2001
Journal of Spinal Cord Medicine (1995-Now)	7.3	!	1995-Now	– 0 –	1995-Now	1995-Now	2003-Now
- Journal of the American Paraplegia Society (1978-1994)	4.3	!	– 0 –	– 0 –	1982-1994	1982-1994	– 0 –
Maryland Medicine (2000-Now)	7.3	!	– 0 –	– 0 –	2000-Now	2000-Now	– 0 –
- Maryland Medical Journal (1985-1999)	4.0	!	1985-1999	– 0 –	1985-1999	1985-1999	– 0 –
Policing and Society (1990-Now)	7.3	!!	– 0 –	2003-Now	– 0 –	2002-Now	– 0 –
Psychiatric Services (1995-Now)	7.3	!	1995-Now	1995-Now	1995-Now	1995-Now	1995-Now
- Hospital and Community Psychiatry (1966-1994)	7.1	!	1966-1994	1966-1994	1966-1994	1966-1994	1966-1994

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Psychology of Women Quarterly (1976-Now)	7.2	!!	– 0 –	1976-Now	Selectively§	1976-Now	1976-Now
Theoretical Issues in Ergonomics Science (2000-Now)	7.2	!	– 0 –	2000-Now	– 0 –	2000-Now	– 0 –
Current Sports Medicine Reports (2002-Now)	7.1	!!	2002-Now	– 0 –	2002-Now	2002-Now	– 0 –
Journal of Prevention and Intervention in the Community (1996-Now)	7.1	!	1996-Now	1996-Now	2005-Now	1996-Now	– 0 –
- Prevention in Human Services (1981-1995)	4.2	!	1981-1995	– 0 –	Selectively§	1981-1995	– 0 –
Legal Medicine (Elsevier) (1999-Now)	7.1	!	1999-Now	– 0 –	2003-Now	1999-Now	– 0 –
Revista Brasileira de Psiquiatria [Brazilian Journal of Psychiatry] (1999-Now)	7.1	!	1999-Now	1999-Now	2003-Now	1999-Now	2005-Now
- Revista ABP-APAL (1986 -1998)	7.6	!	– 0 –	1986-1998	– 0 –	1986-1998	– 0 –
Revue Medicale Suisse (2005-Now)	7.1	!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
Toxicological Reviews (2003-Now)	7.1	!	2003-2006	– 0 –	2003-Now	2003-Now	– 0 –
Ugeskrift for Laeger (1839-Now) [1950 forward]	7.1	!	1972-Now	– 0 –	1950-Now	1950-Now	– 0 –
Australian and New Zealand Journal of Psychiatry (1967-Now)	7.0	!	1973-Now	1969-Now	1970-Now	1989-Now	1967-Now
Cadernos de Saude Publica (1985-Now)	7.0	!	– 0 –	– 0 –	1998-Now	1985-Now	– 0 –
Proceedings of the Institution of Civil Engineers: Transport (1992-Now)	7.0	!	– 0 –	– 0 –	– 0 –	1992-Now	1992-Now
Age and Ageing (1972-Now)	6.9	!	1972-Now	– 0 –	1972-Now	1994-Now	1979-Now
Journal of Traumatic Stress (1988-Now)	6.9	!	1992-Now	1988-Now	1994-Now	1988-Now	1992-Now
American Journal of Health Behavior (1996-Now)	6.8	!!	– 0 –	1996-Now	2001-Now	1996-Now	1996-Now
- Health Values (1977-1995)	5.2		– 0 –	1990-1995	Selectively§	1990-1995	1994-1995

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Asian Journal of Social Psychology (1998-Now)	6.8	!	– 0 –	1998-Now	– 0 –	1998-Now	2001-Now
Addictive Disorders and Their Treatment (2002-Now)	6.7	!	2003-Now	2002-Now	– 0 –	2002-Now	– 0 –
Psychology of Addictive Behaviors (1987-Now)	6.7	!	1994-Now	1987-Now	2000-Now	1987-Now	1994-Now
Annals of General Psychiatry (2005-Now)	6.6	!	2005-Now	– 0 –	2005-Now	2006-Now	– 0 –
Applied Developmental Science (1997-Now)	6.6	!	– 0 –	1997-Now	– 0 –	1997-Now	– 0 –
Australas Psychiatry (1991-Now)	6.6	!	– 0 –	– 0 –	2004-Now	2004-Now	– 0 –
Biomedical Sciences Instrumentation (1963-Now)	6.6	!	1967-Now	– 0 –	1967-Now	1997-Now	– 0 –
British Journal of Hospital Medicine BJHM (2005-Now)	6.6	!	2005-Now	– 0 –	2005-Now	2005-Now	2005-Now
Combustion and Flame (1957-Now)	6.6	!	1973-Now	– 0 –	– 0 –	2006-Now	1957-Now
Community Practitioner (1998-Now)	6.6	!	– 0 –	– 0 –	1998-Now	1998-Now	– 0 –
- Health Visitor (1964-1998)	3.9	!	– 0 –	– 0 –	1970-1998	1975-1998	– 0 –
Culture, Health and Sexuality (1999-Now)	6.6	!	2002-Now	1999-Now	2005-Now	2005-Now	– 0 –
Gender and Education (1997-Now)	6.6	!	– 0 –	– 0 –	– 0 –	2006-Now	2000-Now
JAMA Journal of the American Medical Association (1883-Now) [1950 forward]	6.6	!	1945-Now	1966-Now	1949-Now	1900-Now	1945-Now
Journal of Construction Research (2000-Now)	6.6	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Journal of Electromyography and Kinesiology (1991-Now)	6.6	!	1992-Now	– 0 –	1998-Now	1991-Now	1991-Now
Journal of Failure Analysis and Prevention (2004-Now)	6.6	!!	– 0 –	– 0 –	– 0 –	2004-Now	– 0 –
Journal of Gerontological Social Work (1979-Now)	6.6	!	1979-Now	1981-Now	2005-Now	1979-Now	1980-2000

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of the Neurological Sciences (1964-Now)	6.6	!	1965-Now	– 0 –	1964-Now	1964-Now	1964-Now
Journal of Paediatrics and Child Health (1990-Now)	6.6	!	– 0 –	2001-Now	1990-Now	1990-Now	1990-Now
- Australian Paediatric Journal (1965-1989)	4.7	!	1970-1989	– 0 –	1970-1989	1970-1989	1972-1989
Journal of Physiological Anthropology (2006-Now)	6.6	!	– 0 –	– 0 –	2006-Now	2006-Now	– 0 –
- Journal of Physiological Anthropology and Applied Human Science (2000-2005)	5.8	!	– 0 –	– 0 –	2000-2005	2000-2005	– 0 –
- Applied Human Science (1995-1999)	5.9	!	– 0 –	– 0 –	1995-1999	1995-1999	– 0 –
- Annals of Physiological Anthropology (1982-1994)	5.1	!	– 0 –	– 0 –	1984-1994	1984-1994	– 0 –
Tijdschrift voor Psychiatrie (1974-Now)	6.6	!	1974-Now	1985-Now	2006-Now	1974-Now	– 0 –
- Nederlands Tijdschrift voor Psychiatrie (1969-1973)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Tumu Gongcheng Xuebao [China Civil Engineering Journal (1958-Now)	6.6	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Xinan Jiaotong Daxue Xuebao [Journal of Southwest Jiaotong University] (1986-Now)	6.6	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
American Journal of Sports Medicine (1976-Now)	6.5	!	1976-Now	– 0 –	1976-Now	1976-Now	1980-Now
- Journal of Sports Medicine (1972-1975)	8.6	!	– 0 –	– 0 –	1972-1975	1972-1975	– 0 –
European Journal of Emergency Medicine (1994-Now)	6.5	!	1994-Now	– 0 –	1994-Now	1994-Now	– 0 –
ANZ Journal of Surgery (2001-Now)	6.4	!	2001-Now	– 0 –	2001-Now	2001-Now	2001-Now
- Australian and New Zealand Journal of Surgery (1931-2000) [1950 forward]	4.0	!	1973-2001	– 0 –	1949-2000	1977-2000	1972-2000
Cyberpsychology and Behavior (1998-Now)	6.4	!	1999-Now	1998-Now	2001-Now	1998-Now	
Journal of Beijing Forestry University (1985-Now)	6.4	!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of Clinical Child and Adolescent Psychology (2002-Now)	6.4	!	– 0 –	2002-Now	2002-Now	2002-Now	2002-Now
- Journal of Clinical Child Psychology (1971-2001)	5.6	!	– 0 –	1972-2001	1997-2001	1972-2001	1974-2001
Psychological Medicine (1970-Now)	6.4	!	1970-Now	1970-Now	1970-Now	1970-Now	1971-Now
Sleep Medicine Reviews (1997-Now)	6.4	!	1999-Now	– 0 –	2002-Now	1999-Now	1999-2007
WMJ (Wisconsin Medical Journal (1903-Now) [1950 forward]	6.4	!	1973-Now	– 0 –	1949-Now	1950-Now	– 0 –
Addictive Behaviors (1975-Now)	6.3	!	1975-Now	1976-Now	1977-Now	1979-Now	1975-Now
Archives of Disease in Childhood (1926-Now) [1950-forward]	6.3	!	1965-Now	– 0 –	1949-Now	1950-Now	1945-Now
International Journal of Emergency Mental Health (1999-Now)	6.3	!!	– 0 –	1999-Now	1999-Now	1999-Now	– 0 –
Sleep (1978-Now)	6.3	!	1978-Now	1982-Now	1978-Now	1978-Now	1978-Now
Substance Use and Misuse (1996-Now)	6.3	!	1996-Now	1996-Now	1996-Now	1996-Now	1996-Now
- International Journal of the Addictions (1966-1995)	5.1	!	1970-1995	1971-1995	1970-1995	1966-1995	1966-1995
American Journal Geriatric Psychiatry (1993-Now)	6.2	!	1994-Now	1993-Now	1997-Now	1993-Now	1994-Now
Archives of Gerontology and Geriatrics (1982-Now)	6.2	!	1982-Now	1982-Now	1982-Now	1996-Now	1984-Now
Contemporary Drug Problems (1972-Now)	6.3	!	1974-1994	1972-Now	– 0 –	1972-Now	1972-1988
Critical Social Policy (1981-Now)	6.2	!	– 0 –	2002-Now	– 0 –	2002-Now	2003-Now
European Psychologist (1996-Now)	6.2	!	– 0 –	1996-Now	– 0 –	1996-Now	2002-Now
International Review of Victimology (1989-Now)	6.2	!!	– 0 –	1989-Now	– 0 –	1989-Now	– 0 –
Journal of Agromedicine (1994-Now)	6.2	!	– 0 –	– 0 –	2003-Now	2003-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Journal of the Operational Research Society (1978-Now)	6.2	!	– 0 –	– 0 –	Selectively§	1978-Now	1978-Now
- Operational Research Quarterly (1970-1977)	5.9	!	– 0 –	– 0 –	Selectively§	1970-1977	1970-1977
- OR: Operational Research Quarterly (1953-1969)	6.0	!	– 0 –	– 0 –	– 0 –	1960-1979	1956-1979
Law and Human Behavior (1977-Now)	6.2	!!	1977-Now	1979-Now	1997-Now	1977-Now	1983-Now
Perceptual and Motor Skills (1952-Now)	6.2	!!	– 0 –	1952-Now	1962-Now	1952-Now	1960-Now
Accident Reconstruction Journal (1989-Now)	6.1	!!!	– 0 –	– 0 –	– 0 –	2004-Now	– 0 –
American Journal of Psychiatry (1921-Now) [1950 forward]	6.1	!	1965-Now	1928-Now	1949-Now	1933-Now	1925-Now
American Journal of Emergency Medicine (1983-Now)	6.1	!	1983-Now	– 0 –	1983-Now	1983-Now	1984-Now
British Journal of Psychiatry (1963-Now)	6.1	!	1965-Now	1963-Now	1963-Now	1963-Now	1963-Now
- Journal of Mental Science (1857-1962) [1950 forward]	5.2	!	– 0 –	1920-1962	1949-1962	1949-1962	1945-Now
Cognitive and Behavioral Neurology (2003-Now)	6.1	!	2003-Now	2003-Now	2003-Now	2003-Now	2005-Now
- Neuropsychiatry, Neuropsychology, and Behavioral Neurology (1988-2002)	5.8	!	1988-2002	1988-2002	1997-2002	1988-2002	1993-2002
Journal of Occupational Health (1995-Now)	6.1	!	1995-Now	– 0 –	2003-Now	1995-Now	1997-Now
Journal of Preventive Medicine and Public Health (2002-Now)	6.1	!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
Journal of Research in Personality (1973-Now)	6.1	!	1973-Now	1973-Now	– 0 –	1973-Now	1973-Now
Trends in Cognitive Sciences (1997-Now)	6.1	!	1998-Now	1997-Now	1999-Now	1997-Now	1998-Now
Aeromedica Acta (1952-1979)	6.0	!!	– 0 –	– 0 –	Selectively§	– 0 –	– 0 –
Crime Prevention Studies (1993-Now)	6.0	!!	– 0 –	– 0 –	– 0 –	1993-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
European Journal of Sports Traumatology and Related Research (2001)	6.0	!	2001	– 0 –	– 0 –	2001	2001
- Journal of Sports Traumatology and Related Research (1990-2000)	5.6	!	1990-2000	– 0 –	– 0 –	1990-2000	1996-2000
- Italian Journal of Sports Traumatology (1979-1989)	5.0	!	1979-1989	– 0 –	– 0 –	1979-1989	– 0 –
European Journal of Trauma and Emergency Surgery (2007-)	—	—	2007-	– 0 –	– 0 –	2007-	– 0 –
- European Journal of Trauma (2000-2006)	6.0	!	2000-2006	– 0 –	– 0 –	2000-2006	– 0 –
- Unfallchirurgie (1975-1999)	4.1	!	1978-1999	– 0 –	1980-1998	1978-1999	– 0 –
International Journal of Circumpolar Health (1997-Now)	6.0	!	– 0 –	– 0 –	1997-Now	1997-Now	– 0 –
- Arctic Medical Research (1984-1996)	7.7	!	– 0 –	– 0 –	1985-1996	1984-1996	– 0 –
Journal of the American Academy of Psychiatry and the Law (1997-Now)	6.0	!!	– 0 –	1997-Now	1997-Now	1997-Now	1997-Now
- Bulletin of the American Academy of Psychiatry and the Law (1972-1996)	4.3	!	– 0 –	1973-1996	1974-1996	1973-1996	1994-1996
Journal of Applied Meteorology and Climatology (2006-Now)	6.0	!	– 0 –	– 0 –	– 0 –	2006-Now	2006-Now
- Journal of Applied Meteorology [0894-8763] (1988-2005)	4.0	!	– 0 –	– 0 –	– 0 –	1988-2005	1988-2005
- Journal of Climate and Applied Meteorology (1983-1987)	3.9	!	– 0 –	– 0 –	– 0 –	1983-1987	1983-1987
- Journal of Applied Meteorology [0021-8952] (1962-1982)	4.2	!	– 0 –	– 0 –	– 0 –	1980-1982	1974-1982
Journal of Sports Science and Medicine (2002-Now)	6.0	!	– 0 –	– 0 –	– 0 –	2002-Now	2004-Now
Medicine, Science, and the Law (1960-Now)	6.0	!	– 0 –	– 0 –	1962-Now	1962-Now	1965-Now
Natural Hazards Review (2000-Now)	6.0	!!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
New Zealand Medical Journal (1887-Now) [1950 forward]	6.0	!	1973-Now	– 0 –	1949-Now	1950-Now	1971-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Occupational and Environmental Medicine (1994-Now)	6.0	!!	1994-Now	– 0 –	1994-Now	1994-Now	1994-Now
- British Journal of Industrial Medicine (1944-1993) [1950 forward]	6.8	!!	1965-1993	– 0 –	1949-1993	1950-1993	1945-1993
Proceedings of the Institution of Civil Engineers: Civil Engineering (1992-Now)	6.0	!	– 0 –	– 0 –	– 0 –	1992-Now	1992-Now
Transactions of the Japan Society of Mechanical Engineers, Part C (1935-Now) [1950-forward]	6.0	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Women's Health Issues (1990-Now)	6.0	!	1990-Now	2006-Now	1990-Now	1990-Now	1995-Now
Adolescent and Family Health (2000-Now)	5.9	!	– 0 –	2000-Now	– 0 –	2000-Now	– 0 –
Annals of Family Medicine (2003-Now)	5.9	!	2003-Now	2003-Now	2003-Now	2003-Now	2005-Now
BMC Psychiatry (2001-Now)	5.9	!	2001-Now	– 0 –	2001-Now	2004-Now	– 0 –
Fire Engineering (1926-Now) [1950 forward]	5.9	!!	– 0 –	– 0 –	– 0 –	1983-Now	1983-Now
Health Promotion Practice (2000-Now)	5.9	!	– 0 –	2005-Now	2003-Now	2003-Now	– 0 –
Journal of Applied Developmental Psychology (1980-Now)	5.9	!	– 0 –	1980-Now	– 0 –	1980-Now	1994-Now
Journal of Bridge Engineering (1996-Now)	5.9	!	– 0 –	– 0 –	– 0 –	2006-Now	2006-Now
Lakartidningen (1965-Now)	5.9	!	1965-Now	– 0 –	1965-Now	1965-Now	– 0 –
Psychology of Men and Masculinity (2000-Now)	5.9	!	– 0 –	2000-Now	– 0 –	2000-Now	– 0 –
Rural and Remote Health (2001-Now)	5.9	!	– 0 –	– 0 –	2005-Now	2001-Now	– 0 –
Social Problems (1953-Now)	5.9	!	– 0 –	1953-Now	– 0 –	1953-Now	1956-Now
Wilderness and Environmental Medicine (1995-Now)	5.9	!	1995-Now	– 0 –	1999-Now	1995-Now	1995-Now
- Journal of Wilderness Medicine (1990-1994) [0953-9859]	4.4	!	1990-1994	– 0 –	– 0 –	1990-1994	1990-1994

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
International Journal of Forensic Mental Health (2002-Now)	5.8	!!	– 0 –	2002-Now	– 0 –	2002-Now	– 0 –
International Journal of Osteoarchaeology (1991-Now)	5.8	!	– 0 –	– 0 –	– 0 –	1996-Now	1995-Now
Journal of Emergency Medicine (1983-Now)	5.8	!	1983-Now	– 0 –	1983-Now	1983-Now	1999-Now
Journals of Gerontology Series A: Biological Sciences and Medical Sciences (1995-Now)	5.8	!	1995-Now	1995-Now	1995-Now	1995-Now	1995-Now
Journals of Gerontology Series B: Psychological Sciences and Social Sciences (1995-Now)	7.8	!	1995-Now	1995-Now	1995-Now	1995-Now	1995-Now
- Journal of Gerontology (1946-1994) [1950 forward]	6.9	!	1966-1994	1946-1994	1950-1994	1950-1994	1956-1994
Medical Services Journal of Canada (1958-1967)	5.8	!	– 0 –	– 0 –	1958-1967	1958-1967	– 0 –
- Canadian Medical Services Journal (1954-1957)	10.2	!!	– 0 –	– 0 –	1954-1957	1954-1957	– 0 –
Medicine, Conflict and Survival (1996-Now)	5.8	!!	– 0 –	– 0 –	1996-Now	1996-Now	– 0 –
Prevention Science (2000-Now)	5.8	!	– 0 –	2000-Now	2000-Now	2000-Now	2004-Now
Canadian Medical Association Journal: CMAJ (1911-Now) [1950 forward]	5.7	!	1965-Now	2003-Now	1949-Now	1911-Now	1911-Now
Drug and Alcohol Dependence (1975-Now)	5.7	!!	1975-Now	1975-Now	1975-Now	1975-Now	1980-Now
International Journal of Cognitive Ergonomics (1997-2001)	5.7	!	– 0 –	– 0 –	– 0 –	1999-2001	– 0 –
Journal of American College Health (1982-Now)	5.7	!	1982-Now	1982-Now	1982-Now	1982-Now	1994-Now
- Journal of the American College Health Association (1962-1982)	4.9	!	– 0 –	1971-1981	1962-1982	1962-1982	1973-1977
Journal of Community and Applied Social Psychology (1991-Now)	5.7	!	– 0 –	1991-Now	– 0 –	1991-Now	1991-Now
- Social Behaviour (1986-1990)	5.7	!	– 0 –	1986-1990	– 0 –	1986-1990	1987-1990
Prehospital Emergency Care (1997-Now)	5.7	!	1997-Now	– 0 –	1997-Now	1997-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Alcoholism, Clinical and Experimental Research (1977-Now)	5.6	!	1977-Now	1981-Now	1977-Now	1977-Now	1977-Now
Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz (1999-Now)	5.6	!	– 0 –	– 0 –	2004-Now	2004-Now	– 0 –
Canadian Journal of Rural Medicine (1996-Now)	5.6	!	– 0 –	– 0 –	2004-Now	2004-Now	– 0 –
Chang'an Daxue Xuebao-Ziran Kexue Ban (2002-Now)	5.6	!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Children, Youth and Environments (2003-Now)	5.6	!	– 0 –	– 0 –	– 0 –	2005-Now	– 0 –
Clinical Child Psychology and Psychiatry (1996-Now)	5.6	!	1997-Now	1996-Now	2006-Now	1996-Now	– 0 –
Clinical Practice and Epidemiology in Mental Health (2005-Now)	5.6	!	2005-Now	– 0 –	2005-Now	2005-Now	– 0 –
Harm Reduction Journal (2004-Now)	5.6	!!	2004-Now	– 0 –	2004-Now	2004-Now	– 0 –
Iranian Journal of Pediatrics (1985-Now)	5.6	!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Journal of Aging and Physical Activity (1993-Now)	5.6	!!	1999-Now	2000-Now	2004-Now	1993-Now	1995-Now
Journal of Burn Care and Rehabilitation (1980-2005)	5.6	!	– 0 –	– 0 –	1985-2005	1985-2005	1998-2005
Journal of Cognitive Neuroscience (1989-Now)	5.6	!	1989-Now	1989-Now	1998-Now	1989-Now	1991-Now
Journal of Ethnicity in Substance Abuse (2002-Now)	5.6	!!	2002-Now	2002-Now	2005-Now	2002-Now	– 0 –
- Drugs and Society (1986-2000)	5.0	!!	1986-2000	1986-2000	– 0 –	1986-2000	– 0 –
Journal of Law and Medicine (1993-Now)	5.6	!	– 0 –	– 0 –	2001-Now	2001-Now	– 0 –
Journal of Occupational and Environmental Hygiene (2004-Now)	5.6	!	2004-Now	– 0 –	2004-Now	2004-Now	2004-Now
Journal of Personality and Social Psychology (1965-Now)	5.6	!	– 0 –	1965-Now	1965-Now	1965-Now	1965-Now
- Journal of Abnormal and Social Psychology (1925-1964) [1950 forward]	4.0	!!	– 0 –	– 0 –	1950-1963	1925-1964	1925-1964

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
Journal of Psychiatric Practice (2000-Now)	5.6	!	2002-Now	2001-Now	2004-Now	2000-Now	– 0 –
- Journal of Practical Psychiatry and Behavioral Health (1995-1999)	4.0	!	– 0 –	– 0 –	– 0 –	1996-1999	– 0 –
Journal of Social and Personal Relationships (1984-Now)	5.6	!!	– 0 –	1984-Now	– 0 –	1984-Now	1985-Now
Justice Quarterly (1984-Now)	5.6	!!	– 0 –	– 0 –	– 0 –	1984-Now	2000-Now
Men and Masculinities (1998-Now)	5.6	!	– 0 –	1999-Now	– 0 –	1999-Now	– 0 –
Neurologia Medico-Chirurgica (1959-Now)	5.6	!	1972-Now	– 0 –	1964-Now	1964-Now	1998-Now
Personality and Social Psychology Review (1997-Now)	5.6	!	– 0 –	1997-Now	2003-Now	1997-Now	2000-Now
Psychology and Health (1987-Now)	5.6	!	– 0 –	1987-Now	– 0 –	1987-Now	1992-Now
Psychological Science (1990-Now)	5.6	!	– 0 –	1990-Now	2000-Now	1990-Now	1990-Now
Revista de Saude Publica (1967-Now)	5.6	!	1967-Now	– 0 –	1967-Now	1967-Now	1982-Now
Risk Analysis (1981-Now)	5.6	!	1981-Now	1985-Now	Selectively[§]	1981-Now	1984-Now
Sante: Cahiers d'Etude et de Recherches Francophones (1990-Now)	5.6	!	– 0 –	– 0 –	1994-Now	1994-Now	– 0 –
Social and Legal Studies (1992-Now)	5.6	!	– 0 –	– 0 –	– 0 –	1992-Now	– 0 –
Transcultural Psychiatry (1997-Now)	5.6	!	1998-Now	1997-Now	2003-Now	1997-Now	– 0 –
- Transcultural Psychiatric Research Review (1956-1996)	4.4	!	– 0 –	1987-1996	– 0 –	1990-1996	– 0 –
Tsinghua Science and Technology (1996-Now)	5.6	!	– 0 –	– 0 –	– 0 –	2004-Now	– 0 –
Waking and Sleeping (1976-1980)	5.6	!	1978-1980	– 0 –	1979-1980	1978-1980	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Alcohol and Alcoholism (1983-Now)	5.5	!	1983-Now	1983-Now	1984-Now	1984-Now	1983-Now
- British Journal on Alcohol and Alcoholism (1977-1982)	5.2	!	– 0 –	– 0 –	– 0 –	1977-1982	1977-1982
American Journal on Addictions (1992-Now)	5.5	!	1994-Now	1992-Now	1997-Now	1992-Now	1994-Now
Aviation, Space, and Environmental Medicine (1975-Now)	5.5	!	1975-Now	1975-Now	1975-Now	1975-Now	1975-Now
- Aerospace Medicine (1959-1974)	6.0	!	– 0 –	1959-1974	1959-1974	1959-1974	1961-1974
- Journal of Aviation Medicine (1930-1959) [1950 forward]	9.6	!	– 0 –	– 0 –	1949-1959	1951-1963	– 0 –
Child: Care, Health and Development (1975-Now)	5.5	!!	1975-Now	1975-Now	1975-Now	1992-Now	1975-Now
Drug and Alcohol Review (1990-Now)	5.5	!	– 0 –	1991-Now	2002-Now	1990-Now	1995-Now
European Psychiatry (1991-Now)	5.5	!	1991-Now	1991-Now	1999-Now	1999-Now	1995-Now
- Psychiatrie and Psychobiologie (1986-1990)	5.1	!	1988-1990	1986-1990	– 0 –	– 0 –	– 0 –
Human and Experimental Toxicology (1990-Now)	5.4	!	1990-Now	– 0 –	1990-Now	1990-Now	1990-Now
- Human Toxicology (1981-1989)	4.9	!	1981-1989	– 0 –	1981-1989	1981-1989	1981-1989
Human Psychopharmacology (1986-Now)	5.4	!	1988-Now	1986-Now	2002- Now	2000-Now	1991-Now
International Journal of Geriatric Psychiatry (1986-Now)	5.4	!	1988-Now	1987-Now	1997-Now	1987-Now	1987-Now
Journal of Pediatric Psychology (1976-Now)	5.4	!	1979-Now	1976-Now	1980-Now	1976-Now	1984-Now
Journal of Pediatric Surgery (1966-Now)	5.4	!	1966-Now	– 0 –	1966-Now	1966-Now	1969-Now
Journal of Psychosomatic Research (1956-Now)	5.4	!	1965-Now	1956-Now	1956-Now	1956-Now	1956-Now
Journal of Whiplash and Related Disorders (2002-Now)	5.4	!!	2002-Now	– 0 –	– 0 –	2002-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Occupational Health and Safety (1976-Now)	5.4	!!!	– 0 –	– 0 –	1976-Now	1976-Now	– 0 –
Psychiatry and the Clinical Neurosciences (1995-Now)	5.4	!	1995-Now	2000-Now	1995-Now	1995-Now	1995-Now
- Japanese Journal of Psychiatry and Neurology (1986-1994)	4.0	!	1986-1994	– 0 –	1986-1994	1986-1994	1986-1994
Psychiatry Research (1979-Now)	5.4	!	1979-Now	1979-Now	1979-Now	1979-Now	1979-Now
Brain Injury (1987-Now)	5.3	!	1987-Now	1992-Now	1987-Now	1990-Now	1993-Now
American Journal of Community Psychology (1973-Now)	5.3	!	– 0 –	1974-Now	1973-Now	1975-Now	1975-Now
Aging and Mental Health (1997-Now)	5.3	!	1998-Now	1997-Now	2001-Now	2004-Now	1997-Now
Journal of Clinical Psychiatry (1978-Now)	5.3	!	1978-Now	1978-Now	1978-Now	1978-Now	1978-Now
Journal of Criminal Law and Criminology (1973-Now)	5.3	!	1974-2001	– 0 –	– 0 –	1973-Now	1973-Now
- Journal of Criminal Law, Criminology and Police Science (1951-1972)	4.8	!	– 0 –	– 0 –	– 0 –	1960-1972	1956-1972
Journal Francais d'Ophtalmologie (1978-Now)	5.3	!	– 0 –	– 0 –	1978-Now	1978-Now	1978-Now
Journal of Vestibular Research: Equilibrium and Orientation (1990-Now)	5.3	!	1994-2006	1990-Now	1991-Now	1990-Now	1995-Now
Morphologiai es Igazsagugyi Orvosi Szemle (1961-1990)	5.3	!	1971-1990	– 0 –	1971-1990	1971-1990	– 0 –
Zhonghua Er Ke Za Zhi-Chinese Journal of Pediatrics (1950-Now) [Not published 1967-1978]	5.3	!	– 0 –	– 0 –	2003-Now	2003-Now	– 0 –
American Journal of Geriatric Psychiatry (1993-Now)	5.2	!	1994-Now	1993-Now	1997-Now	1993-Now	1994-Now
Basic and Applied Social Psychology (1980-Now)	5.2	!	– 0 –	1980-Now	– 0 –	1980-Now	1983-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Occupational Medicine [Oxford] (1992-Now)	5.2	!	1992-Now	2006-Now	1992-Now	1992-Now	1992-Now
- Journal of the Society of Occupational Medicine (1973-1991)	4.1	!	1973-1991	– 0 –	1973-1991	1973-1991	1977-1991
- Transactions of the Society of Occupational Medicine (1966-1972)	4.6	!	– 0 –	– 0 –	1966-1972	1966-1972	– 0 –
- Transactions of the Association of Industrial Medical Officers (1951-1965)	4.3	!	– 0 –	– 0 –	1961-1965	1961-1965	– 0 –
International Journal of Law and Psychiatry (1978-Now)	5.2	!!	1978-Now	1978-Now	1978-Now	1978-Now	1978-Now
Journal of Attention Disorders (1996-Now)	5.2	!	1978-2007	1996-Now	2002-Now	1996-Now	– 0 –
Journal of Criminal Justice and Popular Culture (1994-Now)	5.2	!	– 0 –	– 0 –	– 0 –	1999-Now	– 0 –
Legal and Criminological Psychology (1996)	5.2	!	1997-Now	1996-Now	– 0 –	1996-Now	2003-Now
MMW: Fortschritte der Medizin (1999-Now)	5.2	!	1999-Now	– 0 –	1999-Now	1999-Now	1999-Now
- Fortschritte der Medizin (1883-1999)	4.1	!	1971-1999	– 0 –	– 0 –	– 0 –	1974-1998
Sports Medicine (1984-Now)	5.2	!	1984-Now	2006-Now	1984-Now	1984-Now	1984-Now
American Journal of Medical Genetics. Part B, Neuropsychiatric Genetics (2003-Now)	5.1	!	2003-Now	– 0 –	2003-Now	2005-Now	2003-Now
Annals of Agricultural and Environmental Medicine (1994-Now)	5.1	!	1998-Now	– 0 –	1998-Now	2005-Now	2000-Now
Archives of Family Medicine (1992-2000)	5.1	!	1992-2000	– 0 –	1992-2000	1992-2000	1996-2000
Australian Road Research (1962-1991)	5.1	!!!!	– 0 –	– 0 –	– 0 –	1969-1991	– 0 –
Behaviour Research and Therapy (1963-Now)	5.1	!	– 0 –	1963-Now	1963-Now	1992-Now	1963-Now
Californian Journal of Health Promotion (2003-Now)	5.1	!	– 0 –	– 0 –	– 0 –	2003-Now	– 0 –
Canadian Journal of Public Health (1943-Now) [1950 forward]	5.1	!	1965-Now	– 0 –	1949-Now	1964-Now	1966-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Epilepsy and Behavior (2000-Now)	5.1	!	2002-Now	2000-Now	2003-Now	2003-Now	2002-Now
European Journal of Epidemiology (1985-Now)	5.1	!	1985-Now	– 0 –	1985-Now	1992-Now	1987-Now
Future of Children (1991-Now)	5.1	!	1994-Now	1992-Now	1994-Now	1991-Now	1995-Now
Gerontology (1976-Now)	5.1	!	1976-Now	1990-Now	1976-Now	2000-Now	1976-Now
Journal of Health Psychology (1996-Now)	5.1	!	1997-Now	1996-Now	2003-Now	1996-Now	2001-Now
Journal of Occupational and Organizational Psychology (1992-Now)	5.1	!	– 0 –	1992-Now	– 0 –	1992-Now	1992-Now
- Journal of Occupational Psychology (1975-1991)	4.8	!	– 0 –	1975-Now	– 0 –	1975-1991	1975-1991
- Occupational Psychology (1938-1973)	4.4	!	– 0 –	– 0 –	– 0 –	1960-1973	1956-1973
- Human Factor, The (1932-1937)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
Journal of Rural Health (1985-Now)	5.1	!	1985-Now	2006-Now	1986-Now	1985-Now	2002-Now
Journal of Trauma and Dissociation (2000-Now)	5.1	!	2002-Now	2000-Now	2005-Now	2000-Now	– 0 –
Maternal and Child Health Journal (1997-Now)	5.1	!	1997-Now	2004-Now	1997-Now	1997-Now	2004-Now
Neurology (1951-Now)	5.1	!	1965-Now	1951-Now	1951-Now	1951-Now	1951-Now
Police Quarterly (1998-Now)	5.1	!	– 0 –	– 0 –	– 0 –	1998-Now	– 0 –
Psychology, Crime and Law (1994-Now)	5.1	!!	– 0 –	1994-Now	– 0 –	1994-Now	1994-Now
Research in Sports Medicine (2003-Now)	5.1	!	2003-Now	– 0 –	2005-Now	2003-Now	– 0 –
Scandinavian Journal of Medicine and Science in Sports (1991-Now)	5.1	!	1991-Now	2005-Now	1995-Now	1991-Now	1996-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Schweizer Archiv fur Neurologie und Psychiatrie (1985-Now)	5.1	!	1985-Now	1985-Now	1985-1996	1985-1996	1985-Now
- Schweizer Archiv für Neurologie, Neurochirurgie und Psychiatrie (1959-1984)	4.2	!	– 0 –	1959-1984	1959-1984	1959-1984	1977-1984
Sleep and Biological Rhythms (2003-Now)	5.1	!	2004-Now	2006-Now	– 0 –	2004-Now	– 0 –
Western Journal of Medicine (1974-2002)	5.1	!	1974-2002	– 0 –	1974-2002	1974-2002	1974-2002
Child Development (1930-Now) [1950 forward]	5.0	!	– 0 –	1930-Now	1950-Now	1961-Now	1956-Now
Journal of Aircraft (1964-Now)	5.0	!	– 0 –	– 0 –	– 0 –	1980-Now	1977-Now
Journal of Applied Biomechanics (1993-Now)	5.0	!	1995-Now	– 0 –	2005-Now	1993-Now	1993-Now
- International Journal of Sport Biomechanics (1985-1992)	4.8	!	– 0 –	– 0 –	– 0 –	1986-1992	1986-1992
Journal of Earthquake Engineering (1997-Now)	5.0	!!	– 0 –	– 0 –	– 0 –	1997-Now	2000-Now
Journal of Traffic and Transportation Engineering (2001-Now)	5.0	!!	– 0 –	– 0 –	– 0 –	2001-Now	– 0 –
Medicine and Science in Sports and Exercise (1980-Now)	5.0	!	1980-Now	– 0 –	1980-Now	1980-Now	1980-Now
- Medicine and Science in Sports (1969-1979)	5.0	!	1973-1979	– 0 –	1970-1979	1970-1979	1972-1979
Military Medicine (1954-Now)	5.0	!	1965-Now	1967-Now	1954-Now	1954-Now	1961-Now
Revista Latino-Americana de Enfermagem (1993-Now)	5.0	!	– 0 –	2001-Now	1993-Now	1993-Now	– 0 –
Acta Paediatrica (1992-Now)	4.9	!	– 0 –	– 0 –	1992-Now	1992-Now	1992-Now
- Acta Paediatrica Scandinavica (1965-1991)	4.3	!	– 0 –	– 0 –	1965-1991	1965-1991	1965-1991
- Acta Paediatrica (1921-1964)	4.0	!	– 0 –	– 0 –	1950-1964	1950-1964	1962-1964
Cognition (1972-Now)	4.9	!	1973-Now	1972-Now	1978-Now	1996-Now	1972-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
International Journal of Legal Medicine (1990-Now)	4.9	!	1990-Now	– 0 –	1990-Now	1990-Now	1990-Now
Medicine and Law (1982-Now)	4.9	!	1982-Now	– 0 –	1983-Now	1982-Now	– 0 –
Revista de Salud Publica (1967-Now)	4.9	!	1967-Now	– 0 –	2003-Now	1967-Now	– 0 –
Journal of Pediatric Health Care (1987-Now)	4.9	!	– 0 –	2005-Now	1987-Now	1987-Now	– 0 –
Tidsskrift for den Norske Laegeforening (1890-Now) [1950 forward]	4.9	!	1965-Now	– 0 –	1950-Now	1950-Now	– 0 –
African Health Sciences (2001-Now)	4.9	!	2001-Now	– 0 –	2001-Now	2001-Now	– 0 –
Archives de Pediatrie (1994-Now)	4.9	!	1994-Now	– 0 –	1994-Now	1994-Now	1994-Now
European Child and Adolescent Psychiatry (1992-Now)	4.9	!	1994-Now	1992-Now	1995-Now	1992-Now	1994-Now
Zeitschrift fur Unfallchirurgie und Versicherungsmedizin (1990-1994)	4.9	!	1990-1994	– 0 –	1990-1994	1990-1994	– 0 –
Civil Engineering and Environmental Systems (1983-Now)	4.8	!	– 0 –	– 0 –	– 0 –	1983-Now	1998-Now
Development and Psychopathology (1989-Now)	4.8	!	1997-Now	1989-Now	1997-Now	2001-Now	1992-Now
Environment and Behavior (1969-Now)	4.8	!	– 0 –	1969-Now	– 0 –	2000-Now	1969-Now
Health Education and Behavior (1997-Now)	4.8	!	– 0 –	1997-Now	1997-Now	1997-Now	1997-Now
- Health Education Quarterly (1980-1996)	3.2	!	– 0 –	1982-1996	1980-1996	1980-1995	1980-1996
Family and Consumer Sciences Research Journal (1972-Now)	4.8	!!	– 0 –	1994-Now	– 0 –	1972-Now	– 0 –
Japanese Journal of Alcohol Studies and Drug Dependence (1996-Now)	4.8	!	1981-1999	– 0 –	1996-Now	1996-Now	– 0 –
Journal of Health and Social Behavior (1967-Now)	4.8	!	– 0 –	1967-Now	1967-Now	1967-Now	1967-Now
Journal of Youth and Adolescence (1972-Now)	4.8	!	1973-1998	1972-Now	Selectively[§]	1972-Now	1972-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Optometry and Vision Science (1989-Now)	4.8	!	1989-Now	– 0 –	1989-Now	1989-Now	1989-Now
- American Journal of Optometry and Physiological Optics (1974-1988)	5.6	!	– 0 –	– 0 –	1974-1988	1974-1988	1974-1988
- American Journal of Optometry and Archives of American Academy of Optometry (1941-1973)	4.1	!	– 0 –	– 0 –	1949-1973	1949-1973	1972-1973
Australasian Journal of Disaster and Trauma Studies (1997-Now)	4.7	!!	– 0 –	1997-Now	– 0 –	1997-Now	– 0 –
British Journal of General Practice (1990-Now)	4.7	!	1990-Now	– 0 –	1990-Now	1990-Now	1990-Now
- Journal of the Royal College of General Practitioners (1967-1989)	3.6	!	1967-1989	– 0 –	1967-1989	1967-1989	1982-1989
Clinical Psychology Review (1981-Now)	4.7	!	1985-Now	1981-Now	1997-Now	1999-Now	1982-Now
Journal of School Health (1937-Now) [1950 forward]	4.7	!	– 0 –	– 0 –	1949-Now	1949-Now	1956-Now
Work (1990-Now)	4.7	!	1996-Now	2001-Now	2002-Now	2000-Now	– 0 –
American Journal of Criminal Justice (1984-Now)	4.6	!	– 0 –	1993-Now	– 0 –	1990-Now	– 0 –
American Journal of Geriatric Pharmacotherapy (2003-Now)	4.6	!	– 0 –	2003-Now	2003-Now	2006-Now	– 0 –
Ambulatory Pediatrics (2001-Now)	4.6	!	2001-Now	– 0 –	2001-Now	2001-Now	2001-Now
Annales de Pediatrie (1954-1999)	4.6	!	1975-1999	– 0 –	1959-1993	1959-1999	1980-1999
Annales de Readaptation et de Medecine Physique (1982-Now)	4.6	!	1983-Now	– 0 –	2001-Now	2003-Now	– 0 –
Australian Journal of Psychology (1949-Now) [1950 forward]	4.6	!	– 0 –	1949-Now	– 0 –	1989-Now	1956-Now
Behavior Genetics (1970-Now)	4.6	!	1970-Now	1970-Now	1970-Now	1988-Now	1978-Now
Canadian Journal on Aging (1982-Now)	4.6	!	1985-Now	1982-Now	2004-Now	2004-Now	1988-Now
CJEM : Canadian Journal of Emergency Medical Care (1999-Now)	4.6	!	2004-Now	– 0 –	2006-Now	1999-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Clinical and Experimental Ophthalmology (2000-Now)	4.6	!	2000-Now	– 0 –	2000-Now	2000-Now	2000-Now
Depression and Anxiety (1996-Now)	4.6	!	1996-Now	2001-Now	1996-Now	2000-Now	1999-Now
Developmental Psychobiology (1968-Now)	4.6	!	1969-Now	1969-Now	1969-Now	2003-Now	1972-Now
Drugs and Aging (1991-Now)	4.6	!	1991-Now	2005-Now	1991-Now	2004-Now	1992-Now
Ear and Hearing (1980-Now)	4.6	!	1980-Now	– 0 –	1980-Now	2005-Now	1980-Now
European Journal of Paediatric Neurology (1997-Now)	4.6	!	1997-Now	– 0 –	1997-Now	1997-Now	2003-Now
European Neuropsychopharmacology (1990-Now)	4.6	!	1990-Now	1990-Now	1990-Now	2005-Now	1994-Now
Health and Human Rights (1994-Now)	4.6	!	– 0 –	– 0 –	2005-Now	2005-Now	– 0 –
Industrial Health (1963-Now)	4.6	!	1972-Now	– 0 –	1980-Now	1975-Now	1987-Now
Integrative Physiological and Behavioral Science (1991-Now)	4.6	!	– 0 –	1991-Now	1991-Now	1991-Now	1994-Now
International Journal of Adolescence and Youth (1987-Now)	4.6	!	– 0 –	1987-Now	– 0 –	1987-Now	– 0 –
Journal of Experimental Psychology: Applied (1995-Now)	4.6	!	– 0 –	1995-Now	2000-Now	1995-Now	1995-Now
Journal of Musculoskeletal and Neuronal Interactions (2000-Now)	4.6	!	2002-Now	– 0 –	2004-Now	2005-Now	– 0 –
Journal of Sleep Research (1992-Now)	4.6	!	1992-Now	2001-Now	1996-Now	1992-Now	1993-Now
New Media and Society (1999-Now)	4.6	!	– 0 –	2000-Now	– 0 –	2000-Now	2001-Now
Ortopedia, Traumatologia, Rehabilitacja (1999-Now)	4.6	!	2002-Now	– 0 –	2007-Now	2005-Now	– 0 –
Pediatric Research (1967-Now)	4.6	!	1967-Now	– 0 –	1967-Now	1967-Now	1967-Now
Pharmacology, Biochemistry, and Behavior (1973-Now)	4.6	!	1973-Now	1973-Now	1973-Now	1973-Now	1974-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Psychologist (1988-Now)	4.6	!	– 0 –	1995-Now	– 0 –	1988-Now	1988-Now
- Bulletin of the British Psychological Society (1948-1987) [1950 forward]	4.0	!	– 0 –	– 0 –	– 0 –	1960-1987	1957-1987
Sex Roles (1975-Now)	4.6	!	1975-Now	1978-Now	– 0 –	1975-Now	1975-Now
Social Indicators Research (1974-Now)	4.6	!	– 0 –	1987-Now	– 0 –	1974-Now	1974-Now
Social Theory and Practice (1970-Now)	4.6	!	– 0 –	– 0 –	– 0 –	1998-Now	– 0 –
Youth and Society (1969-Now)	4.6	!	– 0 –	1990-Now	– 0 –	1969-Now	1969-Now
American Journal of Forensic Psychology (1983-Now)	4.5	!	1991-Now	1983-Now	– 0 –	1983-Now	– 0 –
Archives of Physical Medicine and Rehabilitation (1953-Now)	4.5	!	1965-Now	– 0 –	1953-Now	1953-Now	1972-Now
- Archives of Physical Medicine (1945-1952) [1950 forward]	3.8	!	– 0 –	– 0 –	1949-1952	– 0 –	– 0 –
Central European Journal of Public Health (1993-Now)	4.5	!	1993-Now	– 0 –	1993-Now	1993-Now	– 0 –
Journal of Abnormal Child Psychology (1973-Now)	4.5	!	1973-Now	1977-Now	1974-Now	1973-Now	1975-Now
Journal of Child Health Care [Sage] (1997-Now)	4.5	!	– 0 –	2002-Now	1997-Now	1997-Now	– 0 –
Salud Publica de Mexico (1959-Now)	4.5	!	1964-Now	– 0 –	1961-Now	1961-Now	1993-Now
Sexual Abuse: A Journal of Research and Treatment (1995-Now)	4.5	!!	– 0 –	1995-Now	1999-Now	1995-Now	2004-Now
- Annals of Sex Research (1988-1993)	4.0	!	– 0 –	1988-1993	– 0 –	1988-1993	– 0 –
Spine (1976-Now)	4.5	!	1976-Now	– 0 –	1978-Now	1976-Now	1979-Now
Women and Health (1976-Now)	4.5	!	1976-Now	1979-Now	1977-Now	1976-Now	1980-Now
American Journal of Drug and Alcohol Abuse (1974-Now)	4.4	!	1974-Now	1976-Now	1977-Now	1974-Now	1974-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
British Journal of Developmental Psychology (1983-Now)	4.4	!	– 0 –	1983-Now	– 0 –	1999-Now	1984-Now
Journal of Human Performance in Extreme Environments (1996-Now)	4.4	!	– 0 –	1996-Now	Selectively§	1996-Now	– 0 –
Peace and Conflict: Journal of Peace Psychology (1995-Now)	4.4	!	– 0 –	1995-Now	– 0 –	1995-Now	– 0 –
Risk, Decision and Policy (1996-2004)	4.4	!	– 0 –	– 0 –	– 0 –	2000-2002	– 0 –
Sleep Medicine (2000-Now)	4.4	!	2001-2004	– 0 –	2003-2004	2000-Now	2003-2004
Aging, Neuropsychology and Cognition (1996-Now) [ISSN 1382-5585]	4.3	!	1996-Now	1996-Now	2006-Now	1996-Now	1996-Now
- Aging and Cognition (1994-1995) [ISSN 0928-9917]	4.0	!	– 0 –	1994-1995	– 0 –	1994-1995	1994-1995
Child and Adolescent Mental Health (2002-Now)	4.3	!	2005-Now	2002-Now	– 0 –	2002-Now	– 0 –
- Child Psychology and Psychiatry Review (1996-2001)	4.0	!	– 0 –	1996-2001	– 0 –	1996-2001	– 0 –
Community Safety Journal (2002-Now)	4.3	!	– 0 –	– 0 –	– 0 –	2002-Now	– 0 –
Sleep and Breathing (1996-Now)	4.3	!	2002-Now	– 0 –	2001-Now	1999-Now	– 0 –
Weather and Forecasting (1986-Now)	4.3	!	– 0 –	– 0 –	– 0 –	1990-Now	1989-Now
Accident Investigation Quarterly (1994-Now)	4.2	!!!!	– 0 –	– 0 –	– 0 –	2004-Now	– 0 –
Area (1969-Now)	4.2	!	– 0 –	– 0 –	– 0 –	1980-Now	1980-Now
Economics and Human Biology (2003-Now)	4.2	!	2003-Now	– 0 –	2003-Now	2003-Now	– 0 –
Emotional and Behavioural Difficulties (1996-Now)	4.2	!	2002-Now	1996-Now	– 0 –	1996-Now	– 0 –
- Therapeutic Care and Education (1992-1995)	4.2	!	– 0 –	1992-1995	– 0 –	1992-1995	– 0 –
- Maladjustment and Therapeutic Education (1983-1991)	4.0	!	– 0 –	1984-1991	– 0 –	1985-1991	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Family Relations (1980-Now)	4.2	!	– 0 –	1980-Now	– 0 –	1980-Now	1980-Now
- Family Coordinator (1968-1979)	4.1	!	– 0 –	1968-1979	– 0 –	1968-1979	– 0 –
Journal of Black Psychology (1974-Now)	4.2	!	– 0 –	1976-Now	– 0 –	1980-Now	2005-Now
Journal of Environmental Psychology (1981-Now)	4.2	!	– 0 –	1981-Now	– 0 –	1981-Now	1988-Now
Journal of Industrial Textiles (1971-Now)	4.2	!	– 0 –	– 0 –	– 0 –	1972-Now	– 0 –
Journal of Risk and Uncertainty (1988-Now)	4.2	!	– 0 –	– 0 –	– 0 –	1988-Now	1990-Now
Journal of Scandinavian Studies in Criminology and Crime Prevention (2000-Now)	4.2	!!	– 0 –	2000-Now	– 0 –	2000-Now	– 0 –
Journal of School Psychology (1963-Now)	4.2	!	– 0 –	1963-Now	– 0 –	1963-Now	1963-Now
Journal of Southeast University: Natural Science Edition (2000-Now)	4.2	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Journal of Substance Use (1999-Now)	4.2	!	1999-Now	2003-Now	– 0 –	1999-Now	– 0 –
Medicine, Science and the Law (1960-Now)	4.2	!	1965-Now	– 0 –	1962-Now	1962-Now	1966-Now
Paediatrics and Child Health (1990-Now)	4.2	!	2000-Now	2001-Now	1990-Now	1990-Now	1990-Now
- Australian Paediatrics Journal (1965-1989)	4.0	!	1970-1989	– 0 –	1970-1989	1970-1989	1972-1989
Securitas [ISSN 0037-0657] (1927-1981)	—	—	– 0 –	– 0 –	– 0 –	– 0 –	– 0 –
- Rassegna di Medicina Industriale e di Igiene del Lavoro (1950-1964)	4.2	!	– 0 –	– 0 –	1950-1964	1957-1964	– 0 –
Accident and Emergency Nursing (1993-Now)	4.1	!	– 0 –	– 0 –	1993-Now	1993-Now	– 0 –
Acta Orthopaedica et Traumatologica Turcica (1962-Now)	8.3	!	– 0 –	– 0 –	2002-Now	1987-Now	– 0 –
Activities, Adaptation and Aging (1981-Now)	4.1	!	– 0 –	1981-Now	– 0 –	1981-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
American Family Physician (1970-Now)	4.1	!	1983-Now	– 0 –	1970-Now	1970-Now	1970-Now
Annals of Biomedical Engineering (1972-Now)	4.1	!	1972-Now	– 0 –	1972-Now	2003-Now	1972-Now
Australian Family Physician (1972-Now)	4.1	!	1973-1982	– 0 –	1976-Now	1972-Now	– 0 –
Arab Journal of Psychiatry (1989-Now)	4.1	!	– 0 –	1989-Now	– 0 –	1989-Now	– 0 –
Behavioral and Brain Sciences (1978-Now)	4.1	!	1995-Now	1978-Now	1997-Now	1990-Now	1978-Now
International Journal of Biometeorology (1961-Now)	4.1	!	1964-Now	– 0 –	1964-Now	1964-Now	1974-Now
Journal of Child Psychology and Psychiatry (1960-Now)	4.1	!	– 0 –	1967-Now	1961-Now	1960-Now	1960-Now
Journal of Emotional and Behavioral Disorders (1993-Now)	4.1	!	– 0 –	1993-Now	– 0 –	1993-Now	1994-Now
Journal of Gang Research (1994-Now)	4.1	!!	– 0 –	1994-Now	– 0 –	1994-Now	– 0 –
- Gang Journal: An Interdisciplinary Research Quarterly (1992-1993)	4.0	!!	– 0 –	1992-1993	– 0 –	1992-1993	– 0 –
Journal of Nonverbal Behavior (1979-Now)	4.1	!	– 0 –	1979-Now	– 0 –	2000-Now	1979-Now
- Environmental Psychology and Nonverbal Behavior (1976-1979)	7.0	!!	– 0 –	1976-1979	– 0 –	1976-1979	1976-1979
Journal of Social Psychology (1930-Now) [1950-forward]	4.1	!	– 0 –	1930-Now	1949-Now	1930-Now	1956-Now
Neuropsychopharmacology (1987-Now)	4.1	!	1987-Now	1987-Now	1987-Now	1987-Now	1987-Now
New England Journal of Medicine (1928-Now) [1950 forward]	4.1	!	1973-Now	1967-Now	1949-Now	1928-Now	1928-Now
Personality and Social Psychology Bulletin (1975-Now)	4.1	!	– 0 –	1975-Now	2003-Now	1975-Now	1976-Now
Recherche Transports Securite (1984-Now)	4.1	!	– 0 –	– 0 –	– 0 –	1998-2003	– 0 –
Transportation Planning and Technology (1972-Now)	4.1	!	– 0 –	– 0 –	– 0 –	1972-Now	1994-Now

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit[†]	WOS[‡]
Transportation Policy (1993-Now)	4.1	!	– 0 –	– 0 –	– 0 –	1993-Now	2005-Now
Unfallchirurg (1985-Now)	4.1	!	1985-Now	– 0 –	1985-Now	1985-Now	1985-Now
Acta Neurologica Scandinavica (1961-Now)	4.0	!	1965-Now	1973-Now	1961-Now	1961-Now	1961-Now
American Journal of Epidemiology (1965-Now)	4.0	!	1965-Now	– 0 –	1965-Now	1973-Now	1965-Now
Annals of Burns and Fire Disasters (1987-Now)	4.0	!!	– 0 –	– 0 –	– 0 –	2006-Now	– 0 –
Archives of General Psychiatry (1959-Now)	4.0	!	1965-Now	1959-Now	1959-Now	1972-Now	1959-Now
British Journal of Sociology (1950-Now)	4.0	!	– 0 –	1950-Now	– 0 –	2004-Now	1956-Now
Chinese Journal of Aeronautics (1988-Now)	4.0	!	– 0 –	– 0 –	– 0 –	2000-Now	– 0 –
Chinese Journal of Traumatology (1998-Now)	4.0	!	2002-Now	– 0 –	2001-Now	1998-Now	– 0 –
Environment and Behavior (1969-Now)	4.0	!!	– 0 –	1969-Now	– 0 –	2000-Now	1969-Now
Experimental Brain Research (1966-Now)	4.0	!	1966-Now	– 0 –	1966-Now	2004-Now	1966-Now
Journal of Community Health (1975-Now)	4.0	!	1975-Now	1993-Now	1975-Now	1975-Now	1994-Now
Journal of Drug Education (1971-Now)	4.0	!!	1972-Now	1971-Now	1984-Now	1971-Now	1975-Now
Journal of Risk Research (1998-Now)	4.0	!	– 0 –	2001-Now	– 0 –	1998-Now	2003-Now
Journal of Strength and Conditioning Research (1993-Now)	4.0	!	– 0 –	– 0 –	2001-Now	1993-Now	1997-Now
- Journal of Applied Sport Science Research (1987-1992)	4.0	!	– 0 –	– 0 –	– 0 –	1987-1992	– 0 –
Psychology, Public Policy, and Law (1995-Now)	4.0	!	– 0 –	1995-Now	Selectively[§]	1995-Now	1995-Now
Revista de Enfermeria (1978-Now)	4.0	!	– 0 –	– 0 –	1981-Now	1981-Now	– 0 –

Journal Name (Years Published)	Mean # Per Year	%*	EMBASE	PsycINFO	PubMed	SafetyLit†	WOS‡
Sante Publique (1988-Now)	4.0	!	Selectively§	– 0 –	1997-Now	1997-Now	– 0 –
Science and Justice (1995-Now)	4.0	!	1995-Now	– 0 –	Selectively§	1995-Now	1995-Now
- Journal of the Forensic Science Society (1982-1994)	4.1	!	1982-1994	– 0 –	Selectively§	1982-1994	1982-1994
- Journal [Forensic Science Society] [0015-7368] (1960-1981)	4.1	!	1965-1981	– 0 –	Selectively§	1965-1981	1967-1969

*!!!!!=>80%, !!!!=60-79%, !!!=40-59%, !!=20-39%, !=<20% [IPSP-related items meeting the inclusion criteria / all peer reviewed articles, editorials, policy statements]
†SafetyLit database items are selected by hand-searching the contents of journals for items that meet the inclusion criteria. Mean number of articles per year and percentages were calculated using the SafetyLit administrative database which includes articles not yet edited and published to the public database. The range of years refers to articles available to the public.
‡The Web of Science includes the Science Citation Index and the Social Science Citation index.
§Articles selectively included in PubMed and EMBASE are a small subset of the complete journal contents. These selectively included articles are NOT likely to be IPSP-relevant.

APPENDIX 3: PROFESSIONAL DISCIPLINES & TERMINOLOGIES

Dictionaries, Glossaries, Thesauri

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APPENDIX 4: LITERATURE DATABASES

ABI-INFORM - Global (360)
Full name:
Abstracted
Business Information
Number of records: 3 100 000
Document types: international professional publications, academic journals, and trade magazines
Coverage began: 1971
IPSP relevant topics: advertising, economics, engineering applications, international trade, management, marketing, media, public administration, and transportation
Included sources: 2800
Source list: http://il.proquest.com/tls/jsp/list/tlsSearch.jsp
Indexed: UMI-ProQuest Thesaurus
Thesaurus: http://tpdweb.umi.com/help/en/eri/tools/thesaurus.htm
Subscription: Required
Maintained by: ProQuest
Distributed by: ProQuest

AgeLine(361)
Full name: AgeLine
Number of records: 90 000
Document types: journal articles, books and book chapters, dissertations, and research and policy reports from many academic, nonprofit, and governmental sources
Coverage began: 1966
IPSP relevant topics: psychology, psychiatry, sociology, social work, demography, economics, policy studies, and the health sciences.
Included sources:
Source list: http://www.aarp.org/research/ageline/journals.html
Indexed: Thesaurus of Aging Terminology
Thesaurus: http://www.aarp.org/research/ageline/thesaurus.html
Subscription: Not required
Maintained by: AARP (formerly known as the American Association of Retired Persons)
Distributed by: AARP - It is also available through licensed commercial database distributors who sell subscriptions to academic and other institutions. Advantages of using a distributor-supplied version include the ability to cross-search several related databases at one time; links to your own library's collection, and access to the full text of articles online

Agricultural and Engineering Abstracts(362)
Full name: Agricultural and Engineering Abstracts
Number of records: (information unavailable)
Document types: journal articles, reports, conference proceedings and books
Coverage began: 1990
IPSP relevant topics: buildings and farm structures, instrumentation, equipment and engines, mechanization, and machinery
Included sources: (information unavailable)
Source list: http://www.cabi.org/SerialsCitedTextFiles/32.txt
Indexed: CABI Thesaurus
Thesaurus: http://www.cabi.org/DatabaseSearchTools.asp?PID=277
Subscription: Required
Maintained by: CABI (Commonwealth Agricultural Bureau International)
Distributed by: CABI

AGRICOLA (363)
Full name: AGRICultural OnLine Access
Number of records: 4 100 000 records
Document types: Academic journal articles, books, and reports
Coverage began: 1970
IPSP relevant topics: agricultural engineering, forestry, geography, and rural sociology
Included sources: 2241
Source list: http://www.nal.usda.gov/indexing/jia.html
Indexed: AGRICOLA Thesaurus
Thesaurus: http://agclass.nal.usda.gov/agt.shtml
Subscription: Not required
Maintained by: National Agricultural Library (USA)
Distributed by: National Technical Information Service (USA)

AI-Online(364)
Full name: Anthropological Index Online
Number of records: 335 000
Document types: Academic journal articles and reports
Coverage began: 1957
IPSP relevant topics: anthropology (physical and social), demography, and cultural ethnography
Included sources: 900 journals among 1500 sources
Source list: http://lucy.ukc.ac.uk/anthind/Titles/journals.html
Indexed: AIO Thesaurus
Thesaurus: http://aio.anthropology.org.uk/aio/keywords.html
Subscription: Individual users- Not Required, Institutions-Required
Maintained by: Royal Anthropological Institute (UK)
Distributed by: Royal Anthropological Institute (UK)

AnthropologicalLit(365)
Full name: Anthropological Literature Index
Number of records: 500 000
Document types: Academic journal articles and monographs
Coverage began: Late 19th century
IPSP relevant topics: anthropology (biological, cultural, physical, and social), sociology, folklore, human geography, and geology
Included sources: 4370
Source list: http://hcl.harvard.edu/libraries/tozzer/journal_list.pdf
Indexed: AnthropologicalLit Thesaurus

Thesaurus:
http://hcl.harvard.edu/libraries/tozzer/subject_headings.pdf
Subscription: Required
Maintained by: Harvard University, Tozzer Library
Distributed by: Harvard University, Tozzer Library

ASSIA (366)

Full name: Applied Social Science Index and Abstracts
Number of records: 424 640
Document types: Academic journal articles
Coverage began: 1987
IPSP relevant topics: anxiety disorders and PTSD, communication,
criminology, cultural anthropology, education, Ethnic studies, Family studies, Geriatrics, Housing, Marriage and intimate relationships, Industrial relations, Child abuse, Legal issues, Political science, Psychology, Race relations, Religion, Sociology, Social work, Substance abuse, Urban planning, and Women's studies
Included sources: 500 journals
Source list:
http://www.csa.com/factsheets/supplements/assia.php
Indexed: ASSIA Thesaurus (available in print and online)
Thesaurus:
http://www.csa1.co.uk/factsheets/supplements/assiaguide.pdf
Subscription: Required
Maintained by: CSA-ProQuest
Distributed by: CSA-ProQuest

AveryIndex (367)
Full name: Avery Index to Architectural Periodicals
Number of records: 610 220
Document types: academic journal articles, manuscripts, and reports
Coverage began: 1934
IPSP relevant topics: architecture and design, interior design, and urban planning
Included sources: 4370
Source list:
http://hcl.harvard.edu/libraries/tozzer/journal_list.pdf
Indexed: Art and Architecture Thesaurus
Thesaurus:
http://www.getty.edu/research/conducting_research/vocabularies/aat/
Subscription: available by subscription from licensed distributors
Maintained by: Getty Research Institute
Distributed by: Getty Research Institute

BEI(368)
Full name: British Education Index
Number of records: Over 140 000
Document types: academic journal articles, reports, conference proceedings
Coverage began: 1976
IPSP relevant topics: educational policy, school administration, and student issues
Included sources: more than 250 British journals
Source list: http://www.leeds.ac.uk/bei/journals.htm
Indexed: British Education Thesaurus
Thesaurus: http://brs.leeds.ac.uk/~beiwww/beid.html
Subscription: Required
Maintained by: University of Leeds, Brotherton Library
Distributed by: University of Leeds, Brotherton Library

C2-SPECTR (369)
Full name: Campbell Collaboration Social, Psychological, Educational, and Criminological Trials Register
Number of records: 11 600
Document types: academic journal articles, conference proceedings, reports
Coverage began: (information unavailable)
IPSP relevant topics: randomized trials in social work and welfare, education, and criminology
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: Not with a controlled vocabulary
Thesaurus: No
Subscription: available online at no cost
Maintained by: Campbell Collaboration
Distributed by: Campbell Collaboration

Child Abuse, Child Welfare and Adoption Database(370)
Full name: Child Abuse, Child Welfare and Adoption Database
Number of records: 41 933
Document types: academic journal articles, reports from government agencies and research foundations, and conference proceedings
Coverage began: 1965
IPSP relevant topics: child maltreatment and its long-term effects
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: Child Abuse, Child Welfare & Adoption Thesaurus
Thesaurus: http://www.nisc.com/factsheets/qcan.asp
Subscription: Not required
Maintained by: Child Welfare Information Gateway (formerly known as U.S. National Clearinghouse on Child Abuse and Neglect Information)
Distributed by: NISC International

CIAO (371)
Included sources:
http://www.ciaonet.org/frame/oljourfrm.html
Thesaurus: None
Full name: Columbia International Affairs Online
Number of records: (information unavailable)
Document types: academic journals, conference proceedings, and policy papers
Coverage began: (information unavailable)
IPSP relevant topics: international differences in injury occurrence and risk factors
Included sources: (information unavailable)
Source list:
http://www.ciaonet.org/frame/oljourfrm.html

Indexed: Not indexed
Thesaurus: None
Subscription: Required
Maintained by: Columbia University Library (New York)
Distributed by: Columbia University Press

CINAHL (372)
Full name: Cumulative Index to Nursing and Allied Health Literature
Number of records: 5 477 900
Document types: Academic journals
Coverage began: 1982
IPSP relevant topics: addictions, burns, child and adolescent health issues, community mental health, family well-being, gerontologic issues, occupational health, and rural health.
Included sources: (information unavailable)
Source list: http://www.cinahl.com/prodsvcs/cinahldb.htm
Indexed: CINAHL Thesaurus
Thesaurus: http://www.cinahl.com/prodsvcs/prodsvcs.htm
Subscription: Required
Maintained by: CINAHL Information Systems
Distributed by: CINAHL Information Systems

CISDOC-CISILO (373)
Full name: CIS Bibliographic Database
Number of records: 65 000 records
Document types: laws and regulations, chemical safety data sheets, training material, articles from periodical publications, books and standards
Coverage began: (information unavailable)
IPSP relevant topics: occupational accidents and diseases as well as ways of preventing them
Included sources: (information unavailable)
Source list: List unavailable
Indexed: CIS Thesaurus
Thesaurus: http://www.ilo.org/dyn/cisdoc/index_html?p_lang=e
Subscription: available online at no cost from the International Labour Organization. It is also available through the Canadian Centre for Occupational Health and Safety and from several vendors.
Maintained by: International Labour Organization's International Occupational Safety and Health Information Centre (CIS)
Distributed by: International Labour Organization's International Occupational Safety and Health Information Centre (CIS)

Civil Engineering Abstracts(374)
Number of records: 868 934
Document types: Academic journals
Coverage began: 1966
IPSP relevant topics: Buildings, towers, and storage tanks; bridges and tunnels; coastal and offshore structures; construction materials; geotechnical engineering; seismic engineering; storm water management and flood analysis; Engineering for: water, electric, petroleum, and gas utilities; highways, railways, streets, waterways
Included sources: 3000
Source list: http://www.csa.com/ids70/serials_source_list.php?db=civil-set-c
Indexed: Limited to broad classification categories
Thesaurus: http://www.csa.com/factsheets/supplements/civilclass.php
Subscription: Required
Maintained by: Cambridge Information Group
Distributed by: Cambridge Information Group through ProQuest

Compendex(375)
Full name: Computerized Engineering Index
Number of records: 10 million
Document types: Academic journals, trade magazines and conference proceedings
Coverage began: 1969
IPSP relevant topics: Many topics
Included sources: 5,600
Source list: Not available online without a subscription
Indexed: Ei Compendex Thesaurus (available in print)
Thesaurus: Not available online without a subscription. Print version.
Subscription: Required
Maintained by: Elsevier Engineering Information
Distributed by: Elsevier Engineering Information and additional content vendors

Criminal Justice Abstracts(376)
Full name: Criminal Justice Abstracts
Number of records: 91 000
Document types:
Coverage began: 1968
IPSP relevant topics: crime trends, crime prevention and deterrence, juvenile delinquency, juvenile justice, police, courts, punishment and sentencing
Included sources:
Source list: http://www.csa.com/factsheets/supplements/cja.php
Indexed: the publisher does not provide a formal, structured thesaurus either online or in print. Instead, online users must use a Database Information button to access several screens of "related terms," which list each descriptor in alphabetical order followed by possible alternatives.
Thesaurus: See above
Subscription: Required
Maintained by: Rutgers University Law Library and Sage Publications
Distributed by: Cambridge Information Group through ProQuest

CWI Index(377)
Full name: Contemporary Women's Issues Index
Number of records: 90 000

Document types: academic journals, books, magazines, research reports and fact sheets from non-profit groups and from government and international agencies
Coverage began: 1992
IPSP relevant topics: Family violence
Included sources: 2407
Source list: http://www.gale.cengage.com/tlist/cwi.html
Indexed: CWI Thesaurus
Thesaurus: http://search.rdsinc.com/help/cwi_thesaurus_index.html
Subscription: Required
Maintained by: Gale Group
Distributed by: Gale Group and additional content vendors

EconLit(378)
Full name: Economics Literature Database
Number of records: (information unavailable)
Document types: journal articles, books, book reviews, collective volume articles, working papers and dissertations
Coverage began: 1969
IPSP relevant topics: (information unavailable)
Included sources: (information unavailable)
Source list: http://www.econlit.org/journal_list.html
Indexed: Journal of Economic Literature (JEL) classification codes
Thesaurus: http://www.econlit.org/subject_descriptors.html
Subscription: Required
Maintained by: American Economic Association (AEA)
Distributed by: AEA and additional content vendors

EMBASE(379)
Full name: Excerpta Medica Database Online
Number of records: 18 million
Document types: academic journals
Coverage began: 1974
IPSP relevant topics: Many topics
Included sources: 7000
Source list: http://info.embase.com/embase_com/content/journals/index.shtml
Indexed: EMTREE
Thesaurus: Not available online without a subscription. Print version.
Subscription: Required
Maintained by: Elsevier EMBASE
Distributed by: Elsevier and additional content vendors

ERIC(380)
Full name: Education Resources Information Center
Number of records: 1.2 million
Document types: academic journals, books, conference and policy papers
Coverage began: 1966
IPSP relevant topics:
Included sources: 600 journals
Source list: http://www.eric.ed.gov/
Indexed: ERIC Thesaurus
Thesaurus: http://www.eric.ed.gov/
Subscription: available online at no cost from Institute of Education Sciences
Maintained by: Institute of Education Sciences - U.S. Department of Education
Distributed by: Institute of Education Sciences - U.S. Department of Education

Ergo-Abs(381)
Full name: Ergonomics Abstracts
Number of records: 123 000
Document types: academic journals, books, conference proceedings
Coverage began: 1985
IPSP relevant topics: ergonomics, psychology, physiology, biomechanics, safety science, human characteristics, human performance factors, medicine, occupational health, sport and transport
Included sources: 300 academic journals
Source list: http://www.informaworld.com/ergo-abs
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: Ergonomics Information Analysis Centre at The University of Birmingham, UK
Distributed by: Taylor and Francis Group

ETOH(382)
Full name: Alcohol and Alcohol Problems Science Database
Number of records: (information unavailable)
Document types: Academic journals, books, conference proceedings laws, magazines, newsletters, reports
Coverage began: 1972 (coverage ended 2003)
IPSP relevant topics: (information unavailable)
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: AOD Thesaurus - electronic and print versions available
Thesaurus: http://etoh.niaaa.nih.gov/AODVol1/aodthome.htm
Subscription: available online at no cost.
Maintained by: U.S. National Institute on Alcohol Abuse and Alcoholism
Distributed by: U.S. National Institute on Alcohol Abuse and Alcoholism

GEOBASE(383)
Full name: GeoBase
Number of records: 1.4 million
Document types: academic and trade journals
Coverage began: 1980
IPSP relevant topics: Geomechanics (dams, tunnels, earthquake engineering, risk analysis); Human geography (Demography, Culture, Politics, Rural and Urban studies, National, Regional and Community Planning)
Included sources: 2000
Source list: http://www.elsevier.com/locate/geobase
Indexed: GEOTREE, REGTREE and ORGTREE
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: Elsevier Publishing
Distributed by: Several content vendors

Global Health(384)
Full name: Global Health
Number of records: 1.2 million
Document types: academic journals, books, conference proceedings
Coverage began: 1973
IPSP relevant topics: Confilct, social issues
Included sources: 3500 scholarly journals
Source list: http://www.cabi.org/datapage.asp?iDocID=169
Indexed: CAB Thesaurus
Thesaurus: Available in print also available online with subscription
Subscription: Required
Maintained by: CAB International, formerly known as the Commonwealth Agricultural Bureaux
Distributed by: CAB Direct and several content providers

Google Scholar(385)
Full name: Google Scholar
Number of records: (information unavailable)
Document types: Books, conference proceedings, journal articles, reports.
Coverage began: Does not apply
IPSP relevant topics: Many topics
Included sources: Everything on the World Wide Web
Source list: Everything on the World Wide Web
Indexed: No
Thesaurus: None
Subscription: Not required
Maintained by: Google
Distributed by: Google

Health and Safety Science Abstracts(386)
Full name: Health and Safety Science Abstracts
Number of records: 177 000
Document types: academic journals
Coverage began: 1981
IPSP relevant topics: Occupational Safety and Health; Transportation; Natural Disasters, Civil Defense, and Emergency Management; Fire, Radiation and Electrical Safety; Consumer and Recreation Safety; Ergonomics and Human Factors; Epidemiology and prevention of injuries and trauma; and Civil and Structural Engineering
Included sources: 967
Source list: http://www.csa.com/factsheets/health-safety-set-c.php
Indexed: The publisher does not provide a formal, structured thesaurus either online or in print. However, records include descriptors.
Thesaurus: See above.
Subscription: Required
Maintained by: University of Southern California's Institute of Safety and Systems Management
Distributed by: Cambridge Information Group through ProQuest

HSELine(387)
Full name: Health & Safety Executive Online Database
Number of records: 250 000
Document types: academic journal articles, books, conference proceedings, reports, and legislation from international sources, publications from the UK Health and Safety Commission and Health and Safety Executive
Coverage began:
IPSP relevant topics: engineering, manufacturing, agriculture, mining, hazardous substances, occupational hygiene, railways, and offshore safety
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: (information unavailable)
Maintained by: HSE Information Management Unit
Distributed by: (information unavailable)

IBSS(388)
Full name: International Bibliography of the Social Sciences
Number of records: 2.5 million
Document types: academic journals, books, reports
Coverage began: 1951
IPSP relevant topics: anthropology, economics, politics, sociology, psychology, social policy.
Included sources: 4215 journals
Source list: http://www.lse.ac.uk/collections/IBSS/about/coverage.htm
Indexed: Available online without cost
Thesaurus: http://www.lse.ac.uk/collections/IBSS/about/keywords.htm
Subscription: Free to certain UK users, others by subscription
Maintained by: London School of Economics and Political Science
Distributed by: Several content vendors

ICONDA(389)
Full name: International CONstruction DAtabase
Number of records:
Document types: academic and trade journals, books, research reports, conference proceedings, business reports, theses
Coverage began: 1976
IPSP relevant topics: Bridges, Tunnels, Dams, Building Stress, Corrosion and Damage, Interior Design, Structural Design and Material Testing
Included sources: more than 400 journals
Source list: http://www.irbdirekt.de/iconda/
Indexed: The publisher does not provide a formal, structured thesaurus either online or in print. However, records include descriptors.
Thesaurus: See above
Subscription: available online at no cost
Maintained by: Fraunhofer Information Centre for Regional Planning and Building IRB
Distributed by: Fraunhofer Information Centre for Regional Planning and Building IRB

ISSHP(390)
Full name: Index to Social Sciences & Humanities Proceedings
Number of records: 191 000

Document types: conference proceedings
Coverage began: 1996
IPSP relevant topics: Many topics
Included sources: 22,000 international conference proceedings
Source list: http://scientific.thomsonreuters.com/products/proceedings/
Indexed: No
Thesaurus: None
Subscription: Required
Maintained by: Institute for Scientific Information
Distributed by: Thomson-Reuters and several content vendors

ITRD(391)
Full name: International Transport Research Documentation
Number of records: 350 000
Document types: academic journals, books, conference proceedings, dissertations, reports
Coverage began: 1972
IPSP relevant topics: road and vehicle safety, accident reconstruction
Included sources: > 500 academic journals
Source list: (information unavailable)
Indexed: ITRD Thesaurus
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: Organisation for Economic Co-operation and Development (OECD) Road Transport Research Program
Distributed by: TRL Limited

ISTP(392)
Full name: Index to Scientific and Technical Proceedings
Number of records: 960 000
Document types: conference proceedings
Coverage began: 1996
IPSP relevant topics: Biomedical and Life Sciences, Civil Engineering, Computer Science, Geology, Industrial Engineering, Materials Science, Mechanical Engineering, Transportation Engineering
Included sources: international scientific and technology conferences
Source list: (information unavailable)
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: Institute for Scientific Information
Distributed by: Thomson-Reuters and several content vendors

Leisure Tourism(393)
Full name: Leisure Tourism Database
Number of records: 84 000
Document types: academic and trade journals
Coverage began: (information unavailable)
IPSP relevant topics: Leisure, recreation, and sports injuries; sports participant and observer violence, alcohol and sports
Included sources: 6000
Source list: http://www.leisuretourism.com/
Indexed: CAB Thesaurus
Thesaurus: Available in print also available online with subscription
Subscription: Required
Maintained by: CAB International, formerly known as the Commonwealth Agricultural Bureaux
Distributed by: CAB Direct and several content providers

Mechanical and Transportation Engineering Abstracts(394)
Full name: Mechanical and Transportation Engineering Abstracts
Number of records: 3.2 million
Document types: academic and trade journals, conference proceedings, technical reports
Coverage began: 1966
IPSP relevant topics: Aircraft; Automobiles, trucks, buses, and motorcycles, Electric and hybrid vehicles, Tanks and armored vehicles; Earthmoving and construction machinery; Agricultural and farm machinery; Industrial materials handling machinery; Sporting and recreational vehicles; Railroad rails and structures, Locomotives; Rail Passenger, freight, and tank cars; High speed trains, rapid transit railways, and monorails; Magnetic levitation railways; Passenger, cargo, commercial, and military ships; Submarines and non-military submersibles; Boats and pleasure craft; Fuels and propellants; Forensic engineering
Included sources: 3000
Source list: http://www.csa.com/factsheets/mechtrans-set-c.php
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: Cambridge Information Group
Distributed by: Cambridge Information Group through ProQuest

MEDLINE/MEDLARS(395)
Full name: Medical Literature Analysis and Retrieval System Online
Number of records: 17 million
Document types: academic journals
Coverage began: 1965 (with some journals back to 1910)
IPSP relevant topics: Many topics
Included sources: 5000
Source list: http://www.ncbi.nlm.nih.gov/sites/entrez?db=journals
Indexed: Medical Subject Headings (MeSH)
Thesaurus: http://www.ncbi.nlm.nih.gov/sites/entrez?db=mesh
Subscription: free online access via PubMed interface and by subscription from several content vendors
Maintained by: U.S. National Library of Medicine
Distributed by: U.S. National Library of Medicine

NIOSHTIC(396)
Full name: National Institute for Occupational Safety and Health Technical Information Center
Number of records: 211 000
Document types: occupational safety and health publications, supported in whole or in part by the U.S. National Institute for Occupational Safety and Health
Coverage began: 1967 (ended 1997)
IPSP relevant topics: reports on exposure, accidents, and remediation effects; ergonomic evaluations of jobs
Included sources: 160 technical journals provide approximately 35% of records in NIOSHTIC; 4,000 other sources of technical articles and reports
Source list: (information unavailable)
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: National Institute for Occupational Safety and Health (USA)
Distributed by: Canadian Centre for Occupational Health and Safety

NIOSHTIC-2(397)
Full name: National Institute for Occupational Safety and Health Technical Information Center
Number of records: 41 000
Document types: occupational safety and health publications, supported in whole or in part by the National Institute for Occupational Safety and Health
Coverage began: 1930s but >39 000 records from after 1971
IPSP relevant topics: Occupational health and safety
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: available online at: http://www2a.cdc.gov/nioshtic-2/
Maintained by: National Institute for Occupational Safety and Health (USA)
Distributed by: National Institute for Occupational Safety and Health (USA)

PAIS International (398)
Full name: Public Affairs Information Service International
Number of records: 553 300
Document types: academic journal articles, books, government documents, statistical directories, grey literature, research reports, conference reports, publications of international agencies.
Coverage began: 1972
IPSP relevant topics: suicide, child abuse, citizen militias, disasters, ethnic cleansing, gun control, intimate partner violence, political persecution, violence in media, weapon stockpiles, workplace violence
Included sources: 850 peer reviewed journals, 4200 journals total
Source list: http://www.csa.com/factsheets/supplements/pais.php
Indexed: PAIS International Subject Terms Authority File
Thesaurus: http://www.csa.com/factsheets/supplements/paisbroadtopics.php
Subscription: Required
Maintained by: (information unavailable)
Distributed by: (information unavailable)

PopLine(399)
Full name: POPulation information onLINE
Number of records: 360 000
Document types: (information unavailable)
Coverage began: 1970
IPSP relevant topics: Demography, gender issues, violence
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: PopLine Thesaurus
Thesaurus: http://db.jhuccp.org/ics-wpd/popweb/Thesaurus/
Subscription: available online at no cost
Maintained by: Johns Hopkins Bloomberg School of Public Health
Distributed by: Johns Hopkins Bloomberg School of Public Health

PsycINFO(400)
Full name:
Number of records: 2.5 million
Document types: academic journals, books, dissertations
Coverage began: 19th century
IPSP relevant topics: Many topics
Included sources: 2150
Source list: http://www.apa.org/psycinfo/covlist.html
Indexed: Thesaurus of Psychological Index Terms
Thesaurus: Print version available, else subscription required
Subscription: Required
Maintained by: American Psychological Association
Distributed by: American Psychological Association and several content vendors

PubMed(395)
Note: See MEDLINE. The contents of the MEDLINE database are the largest component of PubMed. In addition to MEDLINE citations, PubMed also contains: 1) In-process citations which provide a record for an article before it is indexed with MeSH and added to MEDLINE or converted to out-of-scope status; 2) Citations that precede the date that a journal was selected for MEDLINE indexing (when supplied electronically by the publisher); and 3) Some OLDMEDLINE citations that have not yet been updated with current vocabulary and converted to MEDLINE status.
Subscription: available online at no cost
Maintained by: U.S. National Library of Medicine
Distributed by: U.S. National Library of Medicine

SafetyLit(401)
Included sources: http://www.safetylit.org/week/journals.php
Thesaurus: http://www.injurypreventionthesaurus.com
Full name: SafetyLit

Number of records: 82 000
Document types: academic journals
Coverage began: 1950 with selected records from 1890
IPSP relevant topics: Many topics
Included sources: 4300 academic journals
Source list: http://www.safetylit.org/week/journals.php
Indexed: Planned
Thesaurus: http://www.injurypreventionthesaurus.com
Subscription: available online at no cost
Maintained by: Center for Injury Prevention Policy and Practice, Graduate School of Public Health, San Diego State University, USA
Distributed by: Center for Injury Prevention Policy and Practice, Graduate School of Public Health, San Diego State University, USA

Safety Science and Risk Abstracts(402)
Full name: Safety Science and Risk Abstracts
Number of records: 183 300
Document types: (information unavailable)
Coverage began: 1981
IPSP relevant topics: aviation and aerospace safety; risk management strategies; disaster preparedness; ergonomics; natural hazards; nuclear safety; occupational safety; risk assessment and management; seismic risk evaluation
Included sources: (information unavailable)
Source list: (information unavailable)
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: University of Southern California and the University of Waterloo
Distributed by: Cambridge Information Group through ProQuest

SCI(403)
Full name: Science Citation Index (Expanded)
Number of records: (information unavailable)
Document types: academic journals
Coverage began: 1960
IPSP relevant topics: Many topics
Included sources: 5800
Source list: http://www.thomsonscientific.com/cgi-bin/jrnlst/jloptions.cgi?PC=K
Indexed: SCI is a citation index. Thus, it has no controlled vocabulary
Thesaurus: None
Subscription: Required
Maintained by: Thomson-Scientific
Distributed by: Thomson-Scientific through the Web of Science and several content vendors

Scopus(404)
Full name: Scopus
Number of records: 33 million
Document types: academic journals
Coverage began: 1841
IPSP relevant topics: broad coverage of the scientific, technical, medical and social sciences literature
Included sources: 15 000
Source list: http://www.info.scopus.com/docs/title_list.xls
Indexed: Scopus has integrated thesauri like GEOBASE Subject Index (geology, geography, earth and environmental science), EMTREE (biomedicine, life sciences, health), MeSH (biomedicine, life sciences, health), Regional Index (geology, geography, earth and environmental science), Species Index (biology, life sciences), Ei thesaurus (engineering, technology, physical sciences). Index terms from these thesauri are not systmatically assigned.
Thesaurus: None
Subscription: Required
Maintained by: Elsevier Publishing
Distributed by: Elsevier Publishing

SocAbs(404)
Full name: Sociological Abstracts
Number of records:
Document types: academic journals, books, conference proceedings
Coverage began:
IPSP relevant topics:
Included sources: 1800 journals
Source list: http://www.csa.com/factsheets/socioabs-set-c.php
Indexed: Thesaurus of Sociological Indexing Terms - electronic and print versions available
Thesaurus: Not available online without a subscription. Online version incorporated into the CSA Illumina Thesaurus
Subscription: Required
Maintained by: CSA - Cambridge Information Group
Distributed by: Cambridge Information Group through ProQuest

SocialSciAbs(405)
Full name: Social Science Abstracts
Number of records: 964 000
Document types: scholarly journals
Coverage began: 1983
IPSP relevant topics: addiction studies, anthropology, area studies, community health, criminal justice, criminology, economics, family studies, gender studies, geography, gerontology, law, mass media, minority studies, planning & public administration, policy sciences, political science, psychiatry, psychology, public welfare, social work, sociology, urban studies
Included sources: 646
Source list: http://www.hwwilson.com/journals/jl.htm
Indexed: (information unavailable)
Thesaurus: (information unavailable)
Subscription: Required
Maintained by: H. W. Wilson Company
Distributed by: H. W. Wilson Company and several content vendors

SPECTR (369)
Full name: Campbell Collaboration Social, Psychological, Educational, and Criminological Trials Register
See C2-SPECTR

SSCI(406)
Full name: Social Science Citation Index
Number of records: (information unavailable)
Document types: academic journals
Coverage began: 1956
IPSP relevant topics:
Included sources: 2159
Source list: http://www.thomsonscientific.com/cgi-bin/jrnlst/jlresults.cgi?PC=J
Indexed: SSCI is a citation index. Thus, it has no controlled vocabulary.
Thesaurus: None
Subscription: Required
Maintained by: Thomson-Scientific
Distributed by: Thomson-Scientific through the Web of Science and several content vendors

TRIS(407)
Full name: Transportation Research Information Services
Number of records: 750 000
Document types: academic, popular, and trade journals, conference proceedings, scientific reports
Coverage began: (information unavailable)
IPSP relevant topics: engineering and maintenance, traffic planning and control, economics, management, safety, psychology
Included sources: 500 journals
Source list: http://ntlsearch.bts.gov/tris/help.do?topic=tris_online_journals
Indexed: Transportation Research Thesaurus
Thesaurus: http://ntlsearch.bts.gov/tris/trt.do
Subscription: available online at no cost
Maintained by: Transportation Research Board (USA)
Distributed by: National Transportation Library (USA) and several content vendors

WAERSA(408)
Full name: World Agricultural Economics and Rural Sociology Abstracts
Number of records: (information unavailable)
Document types: academic journals, books, conference proceedings
Coverage began: (information unavailable)
IPSP relevant topics: agricultural farm labor; working conditions; sociology and social policy of rural areas; rural/urban relations and migration; rural population trends; social stratification; rural families and communities; behaviour, attitudes and cultural factors; conflict and political movements
Included sources: (information unavailable)
Source list: http://www.cabi.org/AbstractDatabases.asp?SubjectArea=&PID=83
Indexed: CAB Thesaurus
Thesaurus: Available in print also available online with subscription
Subscription: Required
Maintained by: CABI formerly known as the Commonwealth Agricultural Bureaux
Distributed by: CAB Direct and several content vendors

Web of Science(409)
Full name: Web of Science
Number of records: See SCI and SSCI
Document types: academic journals
Coverage began: See SCI and SSCI
IPSP relevant topics: See SCI and SSCI
Included sources: Science Citation Index and Social Science Citation Index
Source list: See SCI and SSCI
Indexed: The Web of Science is a citation index. Thus, it has no controlled vocabulary.
Thesaurus: None
Subscription: Required
Maintained by: Thomson-Scientific
Distributed by: Thomson-Scientific and several content vendors

Windows Live Academic Search(410)
Note: This database has been discontinued as of June 2008 and its contents have been incorporated into the Windows Live search system that incorporates “everything” on the World Wide Web.

APPENDIX 5: DATABASE JOURNAL SELECTION CRITERIA

Three databases (Ei Compendex, MEDLINE and PsycINFO) were selected as examples of frequiently-used databases in the fields of engineering, biomedicine, and psychology.

Ei Compendex Journal Selection Criteria

How do we make decisions about what journals we cover in Compendex?
Subject matter is the primary criterion for selection of a journal.
A Second criterion is the quality of the journal.

Subject Matter
Subject Matter is the primary criterion for selection. Our emphasis is on the major engineering disciplines:

chemical,
civil,
electrical/electronic,
mechanical,
metallurgical, mining and petroleum engineering.
computer engineering and software

We consider these "core" areas for Compendex and will index every signed (authored article) from these journals. We do not cover editorials or discussions. Journals that publish entirely in these disciplines are called "CORE" Journals.

There are also many special subject areas. Journals in these areas are covered selectively. These special subject areas include,

agricultural engineering,
industrial engineering,
textile engineering,
applied chemistry,
applied mathematics,
atmospheric sciences,
paper chemistry and technology

Selective coverage means that our indexers scan the journal and look for articles that are relevant to engineering. For example in the some of these areas, such as Industrial Engineering, there may be trade journals (non-scientific journals). For these we would not cover product reviews. In the area of General Science, for example a very important journal such as Nature, we would only choose articles that are appropriate to our subject scope. We would not index an article on biology or astronomy.

Format and Clarity
The format and clarity of a journal is important for selection for coverage in Compendex. It is very helpful if the articles in the journal are written in English. The editorial scope of the journal should be stated very clearly so that the Compendex staff can determine if the journal is appropriate for inclusion in the database. Peer Review is also important. If other scientists know fellow scientists have reviewed your work, they know that the work is good.

Contribution to knowledge in the subject areas covered.
We *do not* want journals that contain reprints of earlier published papers.
We *do* want journals that publish original research or other original work

Publication Level Criteria
At the publication level, a good journal will have:

A journal title in English.
An ISSN and a CODEN.
Complete publisher information:
Publisher Name
Publisher Address
Publisher City, Country and Postal Code
Publisher Telephone, fax and e-mail

If the journal is on the web, the URL should be published in the journal.

Journal Characteristics

- English language articles
- Peer review
- Thorough and to international standards
- International editorial board
- Must appear on ISI impact factor list
- Measurement of how often journals published in a specific journal are cited in other articles
- Coverage by major abstracting & indexing services
- Has ISSN
- Listing in Ulrich's International Periodicals Directory
- Published by an official publishing house:
- University press
- National press
- International circulation
- International author base

Appendix 5: Database Journal Selection Criteria - Continued

MEDLINE Journal Selection Criteria

MEDLINE, the principal online bibliographic citation database of NLM's MEDLARS® system, is used internationally to provide access to the world's biomedical journal literature. The decision whether or not to index a journal for this service is an important one and is made by the Director of the National Library of Medicine, based on considerations of both scientific policy and scientific quality. The Board of Regents of the Library sets policy for the Library. The Literature Selection Technical Review Committee (LSTRC) has been established to review journal titles and assess the quality of their contents.

There is a rough analogy to the National Institutes of Health's (NIH) decision-making process, with respect to research grant awards. Namely, the relative scientific merit of individual grant applications is determined by Study Sections in the same way journals are evaluated by LSTRC, while the mixture of types of research grants or types of journals is determined independently by Council or Board according to considerations of program relevance. Consonant with this principle, the LSTRC frequently incorporates the review and advice of outside experts in the subject area. As a result of these reviews, currently indexed titles may be dropped and new titles added.

About 5,000 titles are indexed and included in the MEDLINE database. The LSTRC meets three times a year and considers approximately 140 titles at each meeting. Additional titles are considered in reviews of specialty coverage.

The world-wide users of the MEDLARS indexes are researchers, health care practitioners, educators, administrators, and students whose needs vary considerably. All are important, and the goal of the indexes will not be met by concentrating on one set of users at the expense of another. The content, format, and accepted structure of the journals, designed to meet the needs of these users, also vary greatly. NLM still seeks a practical system to guide our selection of journals that will reflect these different needs and desires. In the meantime, the selection is highly dependent on the judgment of Committee members and the Director. The following critical elements are intended as a general guide so that a consistent set of issues will be considered as the Committee members examine journals in their search for the best and the most appropriate coverage of the biomedical literature.

Critical Elements

Scope and coverage: The journals brought to the Committee for review will contain articles predominantly on core biomedical subjects. Journals whose content is predominantly a subject peripheral or related to biomedicine are occasionally brought to the Committee when they have some biomedical content. In these cases, the Committee's advice is sought not only on the quality of the content but also on the contribution it makes to the coverage of the subjects in question. Generally, such journals will not be indexed if their biomedical content is already adequately covered.

Quality of content: Scientific merit of a journal's content is the primary consideration in selecting journals for indexing. The validity, importance, originality, and contribution to the coverage of the field of the overall contents of each title are the key factors considered in recommending a title for indexing, whatever the intended purpose and audience.

Quality of editorial work: The journal should demonstrate features that contribute to the objectivity, credibility, and quality of its contents. These features may include information about the methods of selecting articles, especially on the explicit process of external peer review; statements indicating adherence to ethical guidelines; evidence that authors have disclosed financial conflicts of interest; timely correction of errata; explicit responsible retractions as appropriate; and opportunity for comments and dissenting opinion. Neither the advertising content nor commercial sponsorship should raise questions about the objectivity of the published material. Sponsorship by national or international professional societies may be considered.

Production quality: Quality of the layout, printing, graphics, and illustrations are all considered in assessing a journal. Though not a requirement for selection, journals of archival importance should be printed on acid-free paper. For detailed information concerning the use of acid-free paper please refer to the Acid-Free Paper for Biomedical Literature Fact Sheet.

Audience: MEDLINE is intended primarily for those in the health professions: researchers, practitioners, educators, administrators, and students. The phrase health professionals includes physicians, nurses, dentists, veterinarians, and the many types of allied health professionals in the research and health care delivery systems.

Types of content: Journals whose contents consist of one or more of the following types of information will be considered for indexing:

1. Reports of original research
2. Original clinical observations accompanied by analysis and discussion
3. Analysis of philosophical, ethical, or social aspects of the health professions or biomedical sciences
4. Critical reviews
5. Statistical compilations
6. Descriptions of evaluation of methods or procedures
7. Case reports with discussions

All of these forms of information should be included in MEDLINE in order to fulfill the needs of users. However, coverage of a field tends to create a priority approximately parallel to the order in which the types are listed. For example, journals reporting original research are more likely to contain unique contributions to the coverage of a field and therefore are selected more often than those that contain only case reports.

Publications that consist primarily of reprinted articles, reports of association activities, abstracts of the literature, news items or book reviews, will not usually be indexed.

Foreign language journals: Criteria for selection are the same as for those written in English. In order to extend the accessibility of the journal's content to a wider potential readership, the majority of published articles in the review issues must contain an English-language abstract before the title will be considered for possible indexing.

Geographic coverage: The highest quality and most useful journals are selected without regard for place of publication. In order to provide broad international coverage, special attention is given to research, public health, epidemiology, standards of health care, and indigenous diseases. Journals will generally not be selected for indexing if the contents are subjects already well represented in MEDLINE or that are being published for a local audience.

Interpretation of these criteria will be influenced by the stated purpose of the journal. For purposes of illustration, four broad categories of journals are suggested.

1. Research journals are predominantly devoted to reporting original investigations in the biomedical and health sciences, including research in the basic sciences; clinical trials of therapeutic agents; effectiveness of diagnostic or therapeutic techniques; or studies relating to the behavioral, epidemiological, or educational aspects of medicine.
2. Clinical or practice journals have as their dominant purpose documenting the state of current practice, providing background for those in training, or the continuing education of practitioners. This is done through the publication of case reports, discussions and illustrations of new techniques, evaluations of current practices, and commentaries.
3. Review journals contain the current state of knowledge or practice, integrating recent advances with accepted principles and practice, or summarizing and analyzing the consensus view of controversial issues in knowledge or practice. Review journals

provide background information for practitioners and researchers, students and house officers, and others who wish an overview on the current status of a field.

4. General or all-purpose journals contain elements of all the foregoing and frequently contain commentary and analysis of important social, political, and economic issues. They are usually designed for a broad audience and not limited to a specialty.

Application Process: Any editors or publishers who would like to have their journal reviewed for possible indexing in MEDLINE should access the new "MEDLINE Review Application Form" at http://wwwcf.nlm.nih.gov/lstrc/lstrcform/med/index.html. This form is required for all journals initially reviewed by the LSTRC for inclusion in MEDLINE.

Appendix 5: Database Journal Selection Criteria - Continued

PsycINFO Journal Selection Criteria

Relevance to psychology is the primary criterion for selecting articles for inclusion in the database. Articles that are relevant, archival, and fall within our coverage policy regarding types of articles will be selected. Each article published in a print or electronic journal covered by PsycINFO is reviewed to determine its relevance to psychology.

Relevance
An article that includes any of the following may be psychologically relevant:

- the scientific study of animal and human behavior
- content in any of the subfields of psychology
- non-psychology content of interest to psychologists in different subfields (for example, statistics for use in research design and empirical analysis, anatomical summaries of different organ systems of the human body, etc.)
- content in related fields that has psychological or behavioral implications

Types of Articles Selected
The following types of articles are generally selected:

- Original reports or replications of original research
- Literature reviews and meta analyses
- Surveys
- Case studies
- Theoretical reviews
- Bibliographies
- Substantive comments on other articles and substantive replies to such comments
- Errata, corrections, and retractions

NOTE: Article selection in non-English language journals focuses on original empirical research, critical literature reviews, and substantive theory—papers that advance the field of psychology for an international audience.

Types of Articles NOT Selected

In general, the following types of articles are not selected for coverage in PsycINFO (exceptions are noted in parentheses):

- Editorials (if the editorial is substantial and scholarly, has a title and references, and can be considered an article, then it can be considered for selection)
- News items
- Letters to the Editor (letters that are a substantive comment or reply or present brief clinical case data are considered for selection)
- Papers presented at conferences or symposia (unless they are published as articles in journals that we cover)
- Columns
- Obituaries (only those published in American Psychologist are selected)
- Book and software reviews
- Personal reminiscences, testimonials, or proselytizing
- Informal, anecdotal reports or articles
- Poems
- Interviews

Related disciplines that are selectively included in PsycINFO:

Anthropology
Advertising
Arts & Humanities
Biology
Business
Cognitive Science
Computer Science
Cybernetics, Artificial Intelligence & Robotics
Criminal Justice
Economics
Education
Ergonomics
Family Studies
General Medicine
Gerontology
Geriatrics
Human Factors Engineering
Law and Law Enforcement
Linguistics
Management
Marketing
Mediation & Conflict Resolution
Neurology
Neuroscience
Nursing
Occupational & Rehabilitation Therapy
Penology
Pharmacology
Physiology
Psychiatry
Sociology
Social Work & Social Services
Sports, Recreation & Leisure
Speech Therapy
Statistics

APPENDIX 6: JOURNAL SOURCES FOR TERM LISTS

Journal Name (Publication year concept and term scanning began)
Accident Analysis & Prevention (1969)
Aggression & Violent Behavior (1996)
Aggressive Behavior (1975)
American Journal of Drug & Alcohol Abuse (1980)
American Journal of Sports Medicine (1980)
Annals of Emergency Medicine (1980)
Annual Proceedings of the Association for the Advancement of Automotive Medicine (1969)
Aviation, Space, & Environmental Medicine (1975)
Blutalkohol (1965)
Brain Research (1975)
British Journal of Sports Medicine (1980)
Burns: Journal of the International Society for Burn Injuries (1990)
Child Abuse and Neglect (1980)
Earthquake Engineering and Structural Dynamics (1985)
Community Safety Journal (2002)
Traffic Injury Prevention / Crash Prevention & Injury Control (1999)
Dental Traumatology (1990)
Disasters (1980)
Engineering Failure Analysis (1995)
Fire and Materials (1980)
Fire Safety Journal (1980)
Homicide Studies (1997)
Human Factors (1960)
IATSS Research (1988)
Injury Control & Safety Promotion / International Journal for Consumer & Product Safety (1995)
Injury Prevention (1995)
International Journal of Biometeorology (1970)
International Journal of Crashworthiness (1996)
Journal of Agricultural Safety and Health (1995)
Journal of Applied Fire Science (1991)
Journal of Fire Protection Engineering (1995)
Journal of Motor Behavior (1980)
Journal of Safety Research (1969)
Journal of Studies on Alcohol (1975)
Journal of Wilderness Medicine / Wilderness and Environmental Medicine (1990)
Natural Hazards & Earth System Sciences (2001)
Perceptual & Motor Skills (1975)
Safety Science / Journal of Occupational Accidents (1976)
Suicide & Life Threatening Behavior (1980)
Toxicology & Applied Pharmacology (1970)
Transportation Research, Part F (1998)
Transportation Research Record (1974)

Appendix 7: Periodical Directory Categories

Ulrich's Periodicals Directory Categories

Aeronautics and Space Flight
Agricultural Economics
Agricultural Equipment
Architecture
Biology - Physiology
Building and Construction
Children and Youth
Civil Defense
Clothing Trade
Communications
Communications - Computer Applications
Communications - Radio
Communications - Television and Cable
Communications - Video
Computers
Computers - Computer Games
Consumer Education and Protection
Criminology and Law Enforcement
Drug Abuse and Alcoholism
Earth Sciences
Earth Sciences - Geology
Earth Sciences - Geophysics
Earth Sciences - Hydrology
Earth Sciences - Oceanography
Economic Situation and Conditions
Economic Systems and Theories
Education
Education - Adult Education
Education - Higher Education
Education - School Organization and Administration
Education - Teaching Methods and Curriculum
Engineering
Engineering - Civil Engineering
Engineering - Industrial Engineering
Engineering - Mechanical Engineering
Environmental Safety
Environmental Studies
Ethnic Interests
Fire Prevention
Geography
Giftware and Toys
Handicapped
Handicapped - Hearing Impaired
Handicapped - Physically Impaired
Handicapped - Visually Impaired
Heating Plumbing and Refrigeration
Home Economics
Homosexuality
Housing and Urban Planning
Interior Design and Decoration
Interior Design and Decoration - Furniture and Home Furnishings
International Development and Assistance
Labor and Industrial Relations
Labor Unions
Law
Law - Civil Law
Law - Corporate Law
Law - International Law
Law - Maritime Law
Leisure and Recreation
Machinery
Management
Marketing and Purchasing
Medical Sciences
Medical Sciences - Chiropractic, Homeopathy, Osteopathy
Medical Sciences - Dentistry
Medical Sciences - Dermatology
Medical Sciences - Endocrinology
Medical Sciences - Forensic Sciences
Medical Sciences - Obstetrics and Gynecology
Medical Sciences - Ophthalmology and Optometry
Medical Sciences - Orthopedics and Traumatology
Medical Sciences - Otorhynolaryngology
Medical Sciences - Pediatrics
Medical Sciences - Physical Medicine and Rehabilitation
Medical Sciences - Rheumatology
Medical Sciences - Sports Medicine
Medical Sciences - Surgery
Men's Health
Men's Interests
Men's Studies
Meteorology

Military
Mines and Mining Industry
Motion Pictures
Occupational Health and Safety
Personnel Management
Petroleum and Gas
Pharmacy and Pharmacology
Physics
Physics - Heat
Physics - Mechanics
Physics - Optics
Political Science
Psychology
Public Administration
Public Health and Safety
Sociology
Sports and Games
Statistics
Transportation
Transportation - Air Transport
Transportation - Automobiles
Transportation - Railroads
Transportation - Roads and Traffic
Transportation - Ships and Shipping
Transportation - Trucks and Trucking
Veterinary Sciences
Women's Health
Women's Interests
Women's Studies

WorldCat Categories

Abused Women
Accident Prevention
Accidents
Accidents – Investigation
Accidents – Prevention
Accidents – Statistics.
Accidents, Aviation
Accidents, Aviation – Prevention & Control
Accidents, Occupational
Accidents, Occupational – Prevention & Control
Accidents, Traffic
Accidents, Traffic – Prevention & Control
Adaptation, Psychological
Adolescence
Adolescent Behavior – Psychology
Adolescent Medicine
Adolescent Psychology
Aeronautics
Aeronautics – Safety Measures
Aggressiveness
Aging
Alcohol – Physiological Effect
Alcohol Drinking
Alcohol-Related Disorders
Alcoholism
Alcoholism – Prevention & Control
Alcoholism – Research
Alcoholism – Study And Teaching
Alcoholism – Treatment
Animal Behavior
Anthropology, Physical
Antisocial Personality Disorder
Arctic Medicine
Attachment Behavior
Automobile Drivers – Drug Use
Automobile Drivers – Psychology
Automobile Driving
Automobile Driving – Psychological Aspects
Automobiles – Defects – Reporting
Automotive Medicine
Battered Women
Behavior
Behavior – Drug Effects
Behavioral Medicine
Behavioral Sciences
Behaviorism
Bereavement – Psychological Aspects
Bioengineering
Biological Clocks
Biomechanics
Biometry
Biopharmaceutics
Blasting
Brain
Brain – Physiology
Building
Buildings – Environmental Engineering
Burns
Burns And Scalds
Child Abuse
Child Behavior
Child Behavior Disorders – Prevention & Control
Child Development
Child Development Deviations
Child Psychiatry
Child Psychology
Children – Diseases
Children's Accidents – Prevention
Circadian Rhythm
Circumpolar Medicine
City Planning
Cognition
Cognition Disorders
Community Development
Community Health Nursing
Community Health Services
Community Mental Health Services
Community Psychiatry
Consumer Behavior
Consumer Product Safety
Consumer Protection
Crime
Crime And Criminals
Criminal Anthropology
Criminal Investigation
Criminal Justice
Criminal Law
Criminal Psychology

Criminals – Rehabilitation
Criminology
Critical Care Medicine
Cybernetics
Death
Death – Psychological Aspects
Dermatology
Developmental Biology
Developmental Psychology
Deviant Behavior
Disasters
Drinking and Traffic Accidents
Drug Abuse
Drug Abuse – Study And Teaching
Drug Addiction
Drugged Driving
Drugs
Drugs – Physiological Effect
Drunk Driving
Drunk Driving – Statistics
Drunkenness
Earthquake Engineering
Earthquakes
Economics
Education
Educational Psychology
Elder Abuse
Electric Machinery
Electronics In Transportation
Emergencies
Emergency Medicine
Emergency Nursing
Epidemiology
Ethanol
Explosives
Facility Management
Family
Family Medicine
Family Practice
Family Psychotherapy
Family Relations
Family Violence
Fire
Fire Extinction
Fire Prevention
Forensic Medicine
Forensic Psychiatry
Forensic Psychology
Forest Fires
Freight And Freightage
Geriatric Psychiatry
Geriatrics
Gerontology
Government
Gynecology
Hazardous Substances
Health Behavior
Health Care Costs
Health Education
Health Policy
Health Promotion
Home Accidents – Prevention
Homicide
Human Behavior
Human Development
Human Engineering
Human Physiology
Industrial Accidents
Industrial Hygiene
Industrial Management
Industrial Safety
Insurance Engineering
Intelligent Vehicle Highway Systems
Juvenile Delinquency
Law
Legislation
Man-Machine Systems
Marital Violence
Maxillofacial Injuries
Medicine
Medicine and Psychology
Medicine, Industrial
Mental Disorders
Mental Health
Mental Health Laws
Meteorology
Mineral Industries
Moral Education – Periodicals
Nervous System
Nervous System – Drug Effects
Nervous System – Surgery
Neurology

Neurophysiology
Neuropsychology
Neurosurgery
Object Attachment
Obstetrics
Occupational Diseases – Prevention
Occupational Health
Occupational Medicine
Occupational Therapy
Ophthalmology
Optometry
Orthopedics
Orthopsychiatry
Otolaryngology
Parent-Child Relations
Peace – Research
Pediatric Neurology
Pediatrics
Pediatrics – Psychological Aspects
Physical Medicine
Pipelines
Plant Engineering
Police
Police Administration
Political Science
Politics
Preventive Health Services
Preventive Medicine
Product Safety
Psychiatric Epidemiology
Psychiatry
Psychology
Psychology, Forensic
Psychology, Social
Psychopharmacology
Psychophysiology
Psychotherapy
Public Health
Recreation
Refrigeration And Refrigerating Machinery
Risk Assessment
Roads
Roads – Design And Construction
Safety
Safety Devices
Safety Regulations
School Environment
School Health Services
School Vandalism
School Violence
School Violence – Prevention
Shipment Of Goods
Shipping
Sleep
Sleep – Psychological Aspects
Sleep Disorders
Smoke
Social Behavior Disorders
Social Justice
Social Medicine
Social Problems
Social Psychiatry
Social Psychology
Social Sciences
Social Work, Psychiatric
Sociology
Sports
Sports For Children – Safety Measures
Sports Injuries
Sports Injuries In Children – Prevention
Sports Medicine
Structural Dynamics
Substance-Related Disorders
Substance-Related Disorders – Prevention & Control
Suicide
Suicide – Prevention & Control
Surgery
Terrorism
Tooth Injuries
Toxicology
Traffic Accident Investigation
Traffic Accidents
Traffic Engineering
Traffic Safety
Transportation
Transportation – Psychological Aspects
Transportation – Research
Transportation – Safety Measures
Transportation – Technological Innovations
Transportation Engineering
Traumatology

Victims Of Crimes
Violence
Violence – Research
Violent Crimes
Vision
Wakefulness
Wildfires
Women – Crimes Against
Women – Psychology
Women's Health
Wounds And Injuries
Wounds And Injuries – Adolescent
Wounds And Injuries – Prevention
Wounds And Injuries – Prevention & Control
Wounds And Injuries – Treatment
Youth
Youth – Alcohol Use
Youth – Drug Use

APPENDIX 8: INSTRUCTIONS TO LIBRARIANS

This study will be an assessment of the usefulness of the controlled vocabulary and search systems of two commonly used literature databases (MEDLINE and PsycInfo) for finding articles on selected safety topics.

We are seeking librarians to construct literature search strategies on topics that are among the most queried concepts by injury prevention and safety promotion professionals.

Database usefulness will be assessed by: 1) creating an unduplicated pooled list of all reports found (by all librarians) for each of five topics (see below); 2) identifying relevant and non-relevant reports within each topic; 3) determining the number and proportion of relevant articles each librarian found compared with the unduplicated pooled list; and 4) determining the proportion of non-relevant articles. We will summarize the findings. The identities of the librarian searchers results will not be shared but will be reported using labels such as Librarian A, Librarian B, etc. Information about the librarians' education and training level and years of experience will be gathered but will be reported only in aggregate. The specific search strategies will not be shared, only the recall and precision statistics of each search will be released.

For each topic, the database query results from all librarians will be pooled and an unduplicated list will be created. We (the researchers) will then rank the listed articles as relevant, possibly relevant, or not relevant to each topic. The original search results of each librarian for each topic will be compared with the ranked unduplicated list (gold standard) to assess the proportion of relevant and not relevant listings contained in each librarians original lists – that is, the recall ratio (or sensitivity) and the precision ratio (or positive predictive value) for each topic in each database. Because of the focus of each of the two databases and the content of each controlled vocabulary is designed for other purposes (bio-medicine in the case of MEDLINE and behavioral issues for PsycINFO) we expect that the recall and precision values for each librarian will be quite different. If that is the case, the differences will demonstrate that the search tools for these databases are not very well suited for finding articles about safety issues that are contained in the databases.

Please construct search strategies in MEDLINE and PsycInfo for articles published during the three-year period 2003 through 2005 on the following topics:

Bicycle-related brain injuries
Crash injuries due to road rage
Driving under the influence of alcohol
Self-harming behavior among adolescents
Residential fire injuries

The scope of the each search should help to answer the following questions:

- What is the magnitude of the problem?
- What are the causes and circumstances of the problem?
- What are the physical, social, and economic consequences of the problem?
- What is being done to prevent the problem?
- What prevention efforts have been shown to be successful or unsuccessful?
- What is the degree of individual and societal acceptance of prevention efforts?

Articles, editorials, and letters are all acceptable publication types.

Provide David Lawrence with copies of your search strategies. Although the strategies listed below may not be ideal for their intended purpose (they are included merely as examples), please provide me with a text file in a similar format for each of your ten strategies. Also, indicate the interface you used to access each database (PubMed direct, Ovid, EBSCO, etc).

Even if the service you use allows you to combine searches of more than one database, please construct separate searches for each topic in each database.

We will then conduct searches using each librarian's strategies, produce a listing of citations for each topic from each database, and create the unduplicated list. (We will conduct the searches so that we control the appearance of the search results. This will facilitate the creation of the unduplicated listings.)

The protocol for this study was assessed for ethical issues and accepted by the Internal Review Board at San Diego State University, San Diego, California, USA.

MEDLINE (via PubMed)*

(("Disasters"[MeSH] OR disast*) AND ("Heath"[MeSH] OR "Stress Disorders, Post-Traumatic"[MeSH] OR "Mental Disorders"[MeSH] OR "Signs and Symptoms"[MeSH] OR "health effects" OR "posttraumatic stress disorder" OR "stress reaction*")) NOT (Firesetting Behavior"[MeSH] OR "Psychotherapy"[MeSH])

PsycINFO (via OVID)*

#1 (("Disasters-" in DE) OR ("Natural-Disasters" in DE))
#2 disast*
#3 (#1 OR #2)
#4 (disaster planning OR relief work)
#5 (#3 NOT #4)
#6 (("Health-" in DE) OR (Health-Complaints" in DE) OR ("Mental-Health-+" in DE) OR (Well-Being" in DE))
#7 (("Chronic-Illness" in DE) OR (Mental-Disorders-+" in DE) OR (Physical-Disorders-+ in DE))
#8 ("Symptoms-" in DE)
#9 (("Anxiety-Disorders" in DE) OR ("Emotional-Trauma" in DE) OR ("Post-Traumatic-Stress-Disorder" in DE) OR ("Stress-Reactions" in DE) OR ("Traumatic-Neurosis" in DE))
#10 (("Psychological-Stress" in DE) OR ("Stress-" in DE))
#11 (#6 OR #7 OR #8 OR #9 OR #10)
#12 (#5 AND #11)

*These search strategies appeared in the book, The Long-Term Health Consequences of Disasters, by Ijermans, Dirkzwager, and Breuning (2005).

Please contact David Lawrence if you have any questions.
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APPENDIX 9: QUESTIONNAIRE STUDY III

Survey Introduction

To facilitate our efforts to improve the SafetyLit database search system, we need to learn about the ways SafetyLit users seek information from SafetyLit and other online literature databases. Please tell us about the way you search for publications using online databases. The questionnaire should require less than 15 minutes to complete. We are planning to make improvements to SafetyLit that should make searching for literature easier and more productive. However, before we can effectively improve the system, we need to know how SafetyLit users seek online information on scholarly literature. The information you provide will be used to help us make and prioritize improvements to SafetyLit.

This survey is being conducted anonymously and at no time will your identity be known. All results will be reported only in the aggregate. After you have responded to the request to participate in the survey, your email address will be discarded. At no time will your address be stored in a way that connects it to your survey responses. We will, however, automatically gather information about your nation of residence and the length of time you have been a SafetyLit subscriber. Your survey responses will be collated and analyzed by SafetyLit staff in cooperation with the Injuries Social Aetiology and Consequences Research Group within the Department of Public Health Sciences at Karolinska Institutet in Stockholm, Sweden.

Why participate? In addition to helping to improve the usefulness of SafetyLit, the knowledge gained from the survey may have other uses. While there are published reports of the information-seeking behavior of people working in other fields, there are no published reports of the information-seeking behavior and practices of people working in the injury prevention and safety promotion (IPSP) field. A report that documents the ways IPSP workers search the scientific literature has the potential to enhance your ability to find information from other sources. The report may be used by librarians and managers of other databases to support their decisions about funding priorities for improving your access to information through the databases they control.

Thank you for agreeing to participate.

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How do you seek information?

1. Check the most appropriate response. When I want to find journal articles or reports about an injury or safety issue I ...

a. Always perform the search myself

b. Usually perform the search myself

c. Perform the search myself about half the time

d. Usually ask someone else to perform the search

e. Always ask someone else to perform the search

If answer is "c" "d" or "e" answer item 1a, else move to item 2

1a. When I ask someone else to perform my literature search(s), I usually ask (select the single best answer):

a. a librarian

b. a (non-librarian) subordinate employee or a student

c. a (non-librarian) colleague or friend

Using SafetyLit

2. During the past three months, about how many times have you performed a text-word search of the SafetyLit database archive to find literature?

a. I have not searched the SafetyLit archive

b. 1-2 times

c. 3-5 times

d. 6-9 times

e. 10 or more times

If answer is "a" skip to item 7

3. The last time you searched the SafetyLit database were you seeking (select the single most appropriate answer):

a. A single specific report you already knew about?

b. All reports on a topic?

4. When you last conducted a text-word search of the SafetyLit database, how many different text-word searches did you perform in your effort to obtain a comprehensive listing of all reports on your topic?

a. 1-2 text-word searches

b. 3-5 text-word searches

c. 6-9 text-word searches

d. 10 or more text word searches

5. Briefly describe the topic that was the object of your most recent literature search using SafetyLit.

Free text field.

6. In conducting your most recent SafetyLit text-word search, were you (select all that apply):

a. Satisfied that the results from your query were comprehensive?

b. Satisfied that the results from your query contained few irrelevant items?

c. Not satisfied because you believed the results were not comprehensive?

d. Not satisfied because you received too many irrelevant reports among the results?

e. Not satisfied for some other reason? List the reason(s)

Free text field

Other databases

7. During the past three months, about how many times have you searched any other database (NOT SafetyLit) to find literature about an injury prevention or safety promotion topic?

a. I have not searched any other database to find literature about a safety topic
b. 1-2 times
c. 3-5 times
d. 6-9 times
e. 10 or more times

8. The last time you looked for information about a safety topic in a database other than SafetyLit, what database(s) did you use for your search? (Check all that apply.)

a. CINAHL
b. Ei Compendex
c. EMBASE
d. ERIC
e. IBSS
f. ICONDA
g. ITRD (IRRD)
h. ISTP
i. MEDLINE/PubMed
j. PsychLit
k. PsycINFO
l. Science Citation Index
m. Social Sciences Citation Index
n. SPECTR
o. TRIS
p. Web of Science
q. ZeTOC
r. I have not searched any literature database
s. Other (please specify - see list)

Free text field

9. The last time you searched for journal articles were you …

a. Seeking a single specific article or a few known articles
b. Seeking all relevant articles on the topic of interest

9a. Briefly describe the topic that was the object of your most recent literature search when using one or more of the databases (Not SafetyLit) listed above.

Free text field

10. The last time you looked for information about a safety topic in a database other than SafetyLit, did you ... (select the most appropriate answer)

a. Enter a single word or phrase into the database search box?

b. Combine search words using Boolean operators, proximity controls, or truncation-wildcards?

If answer is "b" answer item 10a, else move to item 11

10a. The last time you looked for information about a safety topic in a database other than SafetyLit, I … (select all that apply)

a. Combined search words using Boolean operators (AND, OR, NOT)
b. Combined terms using proximity controls (NEAR, NOT NEAR, FAR, NOT FOLLOWED BY, SENTENCE)
c. Truncation or wildcard substitution ("*", "?")

11. The last time you searched a database other than SafetyLit, were you (select all that apply):

a. Satisfied that the results from your query were comprehensive?

b. Satisfied that the results from your query contained few irrelevant items?

c. Not satisfied because you believed the results were not comprehensive?

d. Not satisfied because you received too many irrelevant reports among the results?

e. Not satisfied for some other reason? List the reason(s)

Free text field

12. What literature databases have you used during the past TWO YEARS? Please indicate those that you have used by checking the appropriate box(es) below.

a. CINAHL

b. Ei Compendex

c. EMBASE

d. ERIC

e. IBSS

f. ICONDA

g. ITRD (IRRD)

h. ISTP

i. MEDLINE/PubMed

j. PsychLit

k. PsycINFO

l. Science Citation Index

m. Social Sciences Citation Index

n. SPECTR

o. TRIS

p. Web of Science

q. ZeTOC

r. I have not searched any literature database

s. Other (please specify - see list)

Free text field

Knowledge and Skills

13. Please complete the following: I consider myself to have the knowledge and skills necessary to perform a satisfactory (i.e., thorough and focused) search of the following databases (Check all that apply):

a. CINAHL
b. Ei Compendex
c. EMBASE
d. ERIC
e. IBSS
f. ICONDA
g. ITRD (IRRD)
h. ISTP
i. MEDLINE/PubMed
j. PsychLit
k. PsycINFO
l. Science Citation Index
m. Social Sciences Citation Index
n. SPECTR
o. TRIS
p. Web of Science
q. ZeTOC
r. None of the above
s. Other (please specify - see list)

Free text field

Literature Search Training

14. Have you EVER taken a formal training course to improve your literature database search skills?

a. Yes
b. No

If "b" skip to item 18

15. How many formal training courses about literature searches have you taken? (Do NOT count Web-based tutorials or very brief segments of a "library orientation" seminar.)

a. None
b.1-2
c. 2-6
d. 7-12
e. 13-15
f. 16 or more

16. Approximately how many hours of formal training in literature search technique have you had? (Do NOT count Web-based tutorials or very brief segments of a "library orientation" seminar.)

a. None
b.1-2
c. 2-6
d. 7-12
e. 13-15
f. 16 or more

17. Please complete the following: I received skills training to search the following databases: (Check all that apply)

a. CINAHL

b. Ei Compendex

c. EMBASE

d. ERIC

e. IBSS

f. ICONDA

g. ITRD (IRRD)

h. ISTP

i. MEDLINE/PubMed

j. PsychLit

k. PsycINFO

l. Science Citation Index

m. Social Sciences Citation Index

n. SPECTR

o. TRIS

p. Web of Science

q. ZeTOC

r. None of the above

s. Other (please specify - see list)

Free text field

18. Have you used the Web-based tutorial for any of the literature databases you have searched?

a. Yes
b. No

If "b" skip to item 20

19. Please comment very briefly on the effectiveness of any of the Web-based tutorials you have taken.

Free text field

About you ...

20. Is knowledge about injury prevention or safety promotion one of the responsibilities of your job?

a. Yes
b. No

21. Is knowledge about injury prevention or safety promotion important for your volunteer activities?

a. Yes
b. No

22. Is knowledge about injury prevention or safety promotion a PRIMARY responsibility of your job?

a. Yes
b. No

23. Are you a librarian?

a. Yes
b. No

24. I have been involved in a field that uses injury prevention / safety promotion research literature for ____ years.

a. 0 - 1
b. 1 - 3
c. 3 - 5
d. 5 - 10
e. More than 10

Suggestions for Improvements to SafetyLit

25. Please make any comments, criticisms, requests, or suggestions concerning how SafetyLit could become more useful to you.

Free text field

Thank you for your valuable contribution to this study. This was the last question. If you consider yourself finished with the survey click "Submit Survey Answers" and your answers will be recorded. If not, click "Go Back" to go to a previous page and change any answers you want to change.

Called by links from Questions 8, 12, 13 and 17

The following is a list of databases that are known to contain information sources relevant to the IPSP field. This is not intended to be an exhaustive listing. If you have used any databases that are not listed here, please indicate them in the appropriate field.

ABI-INFORM - Global
AgeLine
Agricultural and Engineering Abstracts
AGRICOLA
AI-Online
AnthropologicalLit
ASSIA
AveryIndex
BEI
C2-SPECTR
Child Abuse, Child Welfare and Adoption Database
CIAO
CISDOC-CISILO
Civil Engineering Abstracts
Criminal Justice Abstracts
CWI Index
EconLit
ERIC
Ergo-Abs
ETOH
GEOBASE
Global Health
Google Scholar
Health and Safety Science Abstracts
HSELine
ISSHP
Leisure Tourism
Mechanical and Transportation Engineering Abstracts
NIOSHTIC
NIOSHTIC-2
PAIS International
PopLine
Safety Science and Risk Abstracts
Scopus
SocAbs
SocialSciAbs
WAERSA
Windows Live Academic Search

APPENDIX 10: CONCEPTS, SYNONYMS, AND SEARCH RESULTS

Table 1. *Most searched for concepts*, textword synonyms within each concept and the proportion of available material** that may be found with each textword.*

Concept (unduplicated count) Synonym***	Articles found	%
1. Child Passenger Safety (191)		
Safety seat(s)	118	61.8
Child safety seat(s)	87	45.5
Booster seat(s)	53	27.7
Child Passenger Safety	49	25.7
Children in car(s)	23	12.0
Infant car seat(s)	14	7.3
Infant seat(s)	9	4.7
Children in automobile(s)	6	3.1
Infants in car(s)	6	3.1
Child car seat(s)	4	2.1
Infant restraint(s)	4	2.1
Two articles were found for each of the following terms: Child occupant safety, Child safety in car(s). (1.0% each)	2	
One article was found for each of the following terms: Child safety restraint system(s),and Toddler Seat(s). (0.5% each)	1	
No articles were found for the following query terms: Infant car chair(s), infant restraint system(s), infants in automobile(s), or infant safety restraint system(s).	0	
2. Bicycle Helmets (281)		
Bicycle helmet(s)	274	97.5
Bicycle helmet use	103	36.7
Bike helmet(s)	13	4.6
Cycling helmet(s)	9	3.2
Cyclist helmet(s)	5	1.8
Bicycle helmet wearing	4	1.4
Cyclists' helmet(s)	3	1.1
Pedal cycle helmet(s)	2	0.7
One article was found for each of the following query terms: Bicycle crash helmet(s), Pedalcycle helmet(s). (0.4% each)	1	

3. Ethanol Impaired Drivers (517)

DWI	306	59.2
Drinking and driving	254	49.1
DUI	211	40.8
Drunk driving	202	39.1
Driving under the influence	199	38.5
Drinking driver(s)	147	28.4
Drunk driver(s)	98	19.0
Driving while intoxicated	94	18.2
Drink driving	89	17.2
Drunken driving	64	12.4
Driving while impaired	35	6.8
Drink driver(s)	34	6.6
Per mille limit	32	6.2
Alcohol impaired driving	11	2.1
Drinking-and-driving	9	1.7
Alcohol impaired driver(s)	8	1.5
Per se law(s)	8	1.5
Driving drunk	6	1.2
Alcoholic driver(s)	5	1.0
Two articles were found for each of the following query terms: Driving while drunk, Per mille law(s). (0.4% each)	2	0.4

4. Foot-Propelled Scooters (43)

Microscooter(s)	13	30.2
Micro-scooter(s)	9	20.9
Nonmotorized scooter(s)	7	16.3
Mini-scooter(s)	5	11.6
Miniscooter(s)	4	9.3
Kick scooter(s)	3	7.0
Two articles were found for each of the following query terms: Foot-propelled scooter(s), Miniature scooter(s) , Mini scooter(s). (4.7% each)	2	
One article was found for each of the following query terms: Micro scooter(s), Nonmotorized miniature scooter(s), Non-motorized scooter(s), Nonpowered miniature scooter(s), Nonpowered scooter(s) Small kick-scooter(s), Small unmotorized kick scooter(s), Small-wheeled scooter(s). (2.3% each)	1	
No articles found for: Kickboard scooter(s), Non-powered scooter(s), Razer scooter(s), Razor Scooter(s), Rollerscooter(s), Small scooter(s), Small unmotorized scooter(s), Small unpowered scooter(s), Subminiature scooter(s), Unpowered scooter(s)	0	

5. Sports Injury Prevention (193)

Sports injur (y / ies)	125	64.8
Sports-related	88	45.6
Sport injur (y / ies)	39	20.2
Sports injury prevention	19	9.8
Sports related	17	8.8
Sports safety	7	3.6
Sport safety	4	2.1
No articles found for: Sports safety equipment, Sports safety rule(s)	0	

6. Gang Violence (36)

Gang violence	26	72.2
Gang-related violence	9	25.0
Adolescent gang violence	8	22.2
Juvenile gang violence	5	13.9
Gang-related homicide(s)	4	11.1
Two articles were found for each of the following query terms: Street gang violence, Violent gang(s), Violent juvenile gang(s), Youth gang violence. (5.6% each)	2	5.6
No articles found for: Gang aggression, Gang assault(s), Gang initiation violence, Gang muggings, Gang territory violence, Gang thuggary, Personal status group violence, Territorial gang aggression, Violent gang behavior(s)	0	

7. Not Stopping at Red Traffic Lights (69)

Red light running	15	21.7
Red light camera(s)	14	20.3
Red-light running	14	20.3
Red-light violation(s)	10	14.5
Red light violation(s)	9	13.0
Red-light camera(s)	7	10.1
Running red lights	7	10.1
Red light runner(s)	5	7.2
Red-light runner(s)	2	2.9
One article was found for each of the following query terms: Red light violator(s), Red-light violator(s), Running a red light, Running a red-light. (1.4% each)	1	
No articles found for: Disregarding a red light, Disregarding red light(s), Disregarding red-lights, Disregarding red signals, Ignoring red lights, Ignoring red traffic signals, Ignoring a red traffic signal, Red light infractions, Red signal phase violations, Red signal phase violators, Red signal running, Running red-lights, Running red signals	0	

8. Dog Bites (193)

Dog bite(s)	140	72.5
Dog bite injur (y / ies)	32	16.6
Dog attack(s)	25	13.0
Dangerous dog(s)	11	5.7
Biting dog(s)	8	4.1
Dog-bite injur (y / ies)	4	2.1
Two articles were found for each of the following query terms: Breed specific legislation, Canine aggression, Dog breed(s), Dog mauling(s). (1.0% each)	2	
One article was found for each of the following query terms: Attack dog(s), Dogbite injur (y / ies), Vicious dog(s). (0.5% each)	1	
No articles found for: Bad dog(s), Dangerous dog breed(s), Dog breed legislation	0	

9. Adolescent Suicide (336)

Adolescent suicide	122	36.3
Youth suicide	107	31.8
Suicidal adolescent(s)	54	16.1
Adolescent suicidality	43	12.8
Teenage suicide	21	6.3
Suicidal behavior in adolescents	18	5.4
Suicide among adolescent(s)	18	5.4
Youth suicide prevention	15	4.5
Suicide attempts among adolescent(s)	9	2.7
Suicidal attempts in adolescent(s)	9	2.7
Young suicide	8	2.4
Suicidal behaviour in adolescent(s)	7	2.1
Suicide risk in adolescent(s)	7	2.1
Suicide among youth	6	1.8
Suicidal teen	5	1.5
Teen suicide	5	1.5
Adolescents and suicide	2	0.6
One article was found for each of the following query terms: Suicidal attempts in adolescent(s), Suicidal behaviours in adolescent(s), Suicide attempts during adolescence, Suicide by youth, Teenage attempted suicide. (0.6% each)	1	
No articles found for: Fatal self harm in adolescents, parasuicidal adolescent, parasuicide among youth, suicidal behaviors of adolescent, suicidal behaviours of adolescent, suicidal risk in adolescence, suicidal risk in adolescents, suicide by adolescent, suicide prevention among teens, suicide prevention for adolescent, suicide prevention for teen, suicide prevention in teen, teen parasuicide, teenage parasuicide	0	

10. Aggressive Driving (97)

Aggressive driver(s)	36	37.1
Road rage	31	32.0
Aggressive driving	22	22.7
Driving anger	18	18.6
Driver aggression	16	16.5
Driver anger	6	6.2
High anger driver(s)	4	4.1
Two articles were found for each of the following query terms: Angry drover(s), Angry driving, Hostile driving behavior. (2.1% each)	2	
One article was found for each of the following query terms: Aggressive driver behaviour, Emotional driving, Violence prone driver(s). (1.0% each)	1	
No articles found for: Aggressive driver behavior, aggressive style driving, driver hostility, driver vengeance, hostile driving behaviour, roadrage, road wrath	0	

11. Novice Drivers (83)

Novice driver(s)	60	72.3
New Driver(s)	26	31.3
Learner driver(s)	14	16.9
Beginning driver(s)	12	14.5
Inexperienced driver(s)	11	13.3
Driver inexperience	3	3.6
Learning driver(s)	1	1.2
No articles found for: Beginner driver(s), recently licensed driver(s)	0	

12. Child Abuse (1923)

Child abuse	1335	69.4
Child sexual abuse	347	18.0
Child maltreatment	341	17.7
Abused children	268	13.9
Childhood sexual abuse	239	12.4
Child protection	154	8.0
Child protective services	81	4.2
Maltreated children	74	3.8

Child physical abuse	73	3.8
Abusive parent(s)	67	3.5
Abuse of children	47	2.4
Munchausen syndrome by proxy	33	1.7
Infanticide	32	1.7
Mandated reporter(s)	27	1.4
Physically abused children	24	1.2
Violence against children	23	1.2
Battered child syndrome	21	1.1
Physically abusive parent(s)	20	1.0
Filicide	19	1.0
Abuse reporting	13	0.7
Abusive parenting	12	0.6
Mandated reporting	11	0.6
Violence toward children	11	0.6
Child sexual assault	6	0.3
Non-accidental injury in children	5	0.3
Violence toward children	5	0.3
Child murder	4	0.2
Nonaccidental trauma in children	1	0.1
No articles found for: Childhood NAI, childhood non-accidental injury, inflicted childhood injury, nonaccidental injury in children, pediatric inflicted injury	0	

13. Smoke Alarms (212)

Smoke detector(s)	145	68.4
Smoke alarm(s)	80	37.7
Home smoke detector(s)	6	2.8
Residential smoke detector(s)	6	2.8
Residential smoke alarm(s)	5	2.4
No articles found for: **Home smoke alarm(s)**	0	

14. Intimate Partner Violence (1188)

Domestic violence	763	64.2
Partner violence	580	48.8
Intimate partner violence	392	33.0
Spouse abuse	103	8.7
Dating violence	93	7.8
Partner abuse	76	6.4

Wife abuse	45	3.8
Intimate partner abuse	34	2.9
Spousal homicide	23	1.9
Conjugal violence	16	1.3
Wife battering	10	0.8
Date violence	2	0.2
Intimate abuse	1	0.1

15. Cellular Telephones (127)

Mobile phone(s)	58	45.7
Cell phone(s)	37	29.1
Cellular phone(s)	29	22.8
Cellular telephone(s)	20	15.7
Mobile telephone(s)	13	10.2
Car phone(s)	2	1.6
Car telephone(s)	1	0.8
No articles found for: Handyphone	0	

16. Tap Water Scalds (78)

Water temperature	32	41.0
Water heater(s)	26	33.3
Tap water scald(s)	18	23.1
Hot tap water	17	21.8
Tap water burn(s)	12	15.4
Tap water temperature	7	9.0
Domestic hot water	4	5.1
Bath scald(s)	3	3.9
Hot water heater(s)	3	3.9
Water Cylinder(s)	3	3.9
Water heater setting(s)	3	3.9
Two articles were found for each of the following query terms: Tapwater scald(s), Tap-water temperature, **Tap-water scald(s)**, Domestic hot water temperature. (2.6% each)	2	2.6
One article was found for each of the following query terms: Anti-scald device, Automatic mixing valve(s), Combi-Boiler(s), Hot tap-water, Hot tapwater, Hot water cylinder, Household water temperature, Maximum water temperature, Scalding water temperature, Tap-water burn, Tap-water injury, Temperature-controlling water valve, Tempering water valve, Thermostatic mixer valves, Thermostatic valves. (1.3% each)	1	
No articles found for: domestic water burn(s), domestic water scald(s), geyser(s), water temperature law, wetback boiler	0	

17. Miniature Motorcycles (1)

One article was found for each of the following query terms: Mini moto(s), Small motor bike(s)	1	100
No articles found for: Microminiature motorbike(s), Microminiature motorcycle(s), Midget motor(s), Midget motorbike(s), Midget motorcycle(s), Mini-chopper(s), Mini-midget motorbike(s), **Mini-motorbike(s)**, Mini-powerbike(s), Mini-midget motorcycle(s), Miniature motorbike(s), Miniature motorcycle(s), Pocketbike(s), Pocketcycle(s), Pocket electrocycle(s), Pocket motorcycle(s), Pocket minibike(s), Pocket powerbike(s), Pocket powercycle(s), Pocket rocket bike(s), Subminiature motorbike(s).	0	

18. Violent Video Games (68)

Violent video game(s)	39	57.4
Video game violence	18	26.5
Violent computer game(s)	11	16.2
Violent electronic game(s)	5	7.4
Violence in video games	4	5.9
Two articles were found for each of the following query terms: Video-game violence, Videogame violence. (2.9% each)	2	
No articles found for: Computer game violence, electronic game violence, interactive computer game violence, interactive electronic game violence, violence in video-games, violence in videogames	0	

19. School Violence (48)

School violence	39	81.3
Violence in school	11	22.9
Violence at school(s)	1	2.1
No articles found for: Schoolyard violence	0	

20. Seat Belt Legislation (115)

Seat belt law(s)	66	57.4
Seat belt legislation	35	30.4
Mandatory seat belt(s)	32	27.8
Seat belt use law(s)	27	23.5
Mandatory seat belt use	7	6.1
Seat belt requirement(s)	2	1.7

21. Bicycle-Related Injuries (193)

Bicycle accident(s)	97	50.3
Bicycle-related injur (y / ies)	70	36.3
Bicycle crash(es)	32	16.6
Bicycle-related head injur (y / ies)	32	16.6
Cycling injur (y / ies)	30	15.5
Cycling accident(s)	22	11.4
Bicycling injur (y / ies)	15	7.8
Bicyclist injur (y / ies)	11	5.7
Bicycle-related death	6	3.1
Cyclist accident	6	3.1
Bicycle-related brain injur (y / ies)	4	2.1
Cyclists' injur (y / ies)	3	1.6
Two articles were found for each of the following query terms: Bicycle head injur (y / ies), Pedal cycle injur (y / ies). (1.0% each)	2	
No articles found for: Pedal cycle crash(es), pedalcyclist death(s)	0	

22. Baby Walkers (64)

Baby walker(s)	33	51.6
Infant walker(s)	25	39.1
Babywalker(s)	5	7.8
Mobile infant walker(s)	2	3.1
One article was found for each of the following query terms: Baby go-cart(s), Baby mobile(s). (1.6% each)	1	
No articles found for: Baby go-frame, baby scooter, baby walking frame, babymobile, baby trotter, infant mobile walker, infant scooter frame, infant walker mobile, infant walking aid, infant walking frame, infant wheeled walker, youpala	0	

23. Swimming Pools (84)

Swimming pool(s)	83	98.9
Swimming pool drowning(s)	9	10.7
Drownings in domestic swimming pool(s)	3	3.6
Swimming pool accident(s)	3	3.6
Two articles were found for each of the following query terms: Domestic swimming pool drowning(s), Drowning in domestic swimming pool(s), Drowning in private swimming pool(s), Drowning in swimming pool(s), Drowning in swimming pool(s), Drownings in private swimming pools(s), Swimming pool immersion accident(s), Swimming pools and drowning. (2.4% each)	2	

No articles found for: Accidental pool drowning, Domestic pool accidents, Drowning accidents in private swimming pools, **Home swimming pool drownings**, Public swimming pool drowning, Residential pool drowning, Residential swimming pool drowning, Swimming pool immersion deaths	0	

24. Motorcycle helmets (88)

Motorcycle helmet(s)	88	100
Motorcycle helmet law(s)	39	44.3
Motorcycle helmet use	31	35.2
Motorcycle helmet legislation	7	8.0
Motorcycle helmet-use law(s)	4	4.5
No articles found for: Motorcycle helmet wearing	0	

25. Risk-taking behavior (718)

Risk behavior(s)	183	25.5
Risk perception	157	21.9
Sensation seeking	132	18.4
Perceived risk	112	15.6
Risk taking	102	14.2
Risk-taking	87	12.1
Risky behavior(s)	84	11.7
Risk behaviour(s)	40	5.6
Risk compensation	39	5.4
High-risk behavior(s)	35	4.9
Risk communication	29	4.0
Risk homeostasis	22	3.1
Risky behaviour(s)	16	2.2
Risk acceptance	8	1.1
Taking risks	7	1.0
Injury-risk behavior(s)	6	0.8
Risk preference	3	0.4
No articles found for: Danger perception, Pro-risk attitude(s); Pro-risk behavior, Risk appreciation, Risk sensitivity, Warning adherence		

*Concepts are listed in order of search frequency, synonyms are listed in order of number of articles identified by the term. For each concept, the textword most frequently used in queries is indicated in bold type.

**Articles may contain more than one textword synonym from each list

*** Other concept terms and their synonyms may be viewed as part of a draft IPSP thesaurus at http://www.injurypreventionthesaurus.com.

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