

# Health needs and public health functions addressed in French public health journals

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**Background:** Our aim, as part of the collaborative study *SPHERE* (Strengthening Public Health Research in Europe), was to describe public health publications in the French language according to health needs and public health functions. **Method:** All articles published in six French public health journals, and one French/English language Canadian journal, over the period 1995–2004, were retrieved from three electronic databases. Original research articles were indexed by hand according to one main domain of health need, based on Global Burden of Disease categories, and into one of four public health functions. **Results:** After removing duplicates, 3984 original research articles were identified. Only 51% could be allocated to a health needs code. Of these, 71% were about non-communicable diseases, 25% communicable, maternal and perinatal conditions and 5% injuries. This compared only moderately with the global burden of disease for France (84, 5 and 11%, respectively). The other articles addressed health determinants, such as behavioural or environmental exposures, or a methodological issue. Ninety-two percent of the articles could be assigned a public health function code. Health monitoring and health services research accounted for 80% of references from French journals. Only 9% of articles from French journals were related to prevention, which was lower than that in the Canadian journal (17%). Only 1% of articles dealt with legislation. **Conclusion:** The distribution of articles in French public health journals broadly follows the distribution of health needs. History and data availability may explain the extra research focus on communicable diseases and maternal and child health research. Injuries, and prevention, are topics which appear to be under-represented in French language journals.

**Keywords:** bibliometry, Europe, French language, literature review, public health research

Many drivers may influence the direction of research ranging from cultural background, economic factors, military conflicts and industrial competition.<sup>1</sup> From a societal point of view, however, research is best geared towards areas where new knowledge would derive maximal benefits. In the field of public health, this statement implies that research should concentrate on the major current or predicted causes of ill health and should try to identify interventions to combat them.

The collaborative study *SPHERE* (Strengthening Public Health Research in Europe) has made an assessment of the public health scientific literature produced in Europe and in comparison with other parts of the world.<sup>2</sup> In several European countries, a significant proportion of original scientific publications are not in English. Own language public health studies may speak to a different audience than English-language publications. We have explored how public health literature published in French addresses health needs and public health functions.

## Method

We analysed research articles published in French in peer-reviewed public health journals retrospectively for the period 1995–2004. The main characteristics of the six French journals and of the Canadian journal are presented in table 1. References from these journals were downloaded from three electronic databases, PASCAL and FRANCIS from the “*Institut de l’Information Scientifique et Technique*” (INIST), and EMBASE from Elsevier. These databases provide a good coverage of European scientific publications. We listed all

publications within these seven journals for the period 1995–2004. All the Canadian journal articles were included in the analysis, having abstracts in French, although only a small minority (about 5%) had their main text in French. This allowed comparison between French and Canadian patterns of publication.

After removal of duplicates between the databases, editorials and letters, we examined each article individually in order to assign it both a health needs category and a public health function. We used the Global Burden of Diseases (GBD) classification to provide the health needs categories.<sup>3</sup> The GBD project provides estimates of the burden of disease both worldwide and at country level. This is done by combining mortality, morbidity and disability data into a single measure of disease burden known as Disability Adjusted Life Years (DALYs). The GBD list of conditions is organized into four levels. We classified the articles at the first level of precision which contains three categories:

- (i) communicable diseases, and maternal and perinatal conditions (also contains nutrition deficiencies);
- (ii) non-communicable diseases (including cancer, cardiovascular diseases, neuropsychiatric conditions);
- (iii) injuries (intentional and non-intentional).

We then compared the distribution of references from the French journals published in France with the distribution of DALYs for France.

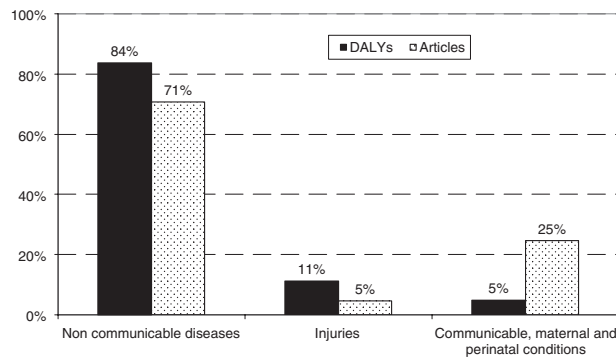
We used a simplified version of the list of essential public health functions defined by the World Health Organization<sup>4</sup> for assigning each reference to one of following domains of public health: health monitoring (subdivided into monitoring health and disease, and monitoring health determinants); health services research; prevention and legislation. The health services research category was wide ranging, including health care system, planning, quality, costs, health policy and access to health care. Prevention covered health education, health promotion, screening, immunization and the treatment of addictions. Legislation included references related to the

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**Table 1** Characteristics of the journals selected for the study

Current title	Abbreviation <sup>a</sup>	Focus	First published in	No. of issues (per year)	No. of subscriptions (2005)	No. of articles incl. in study
Archives des Maladies Professionnelles et de l'Environnement	<i>Arch Mal Prof</i>	Strong focus on occupational health	1938	6	2600	1470
Environnement Risques et Santé	<i>Env Risques Sante</i>	Strong focus on environmental health issues	2002	6	450	105
Revue d'Epidémiologie et de Santé Publique	<i>Rev Epidemiol Sante Publique</i>	General with a focus on epidemiology and research	1952	6	850	585
Revue Médicale de l'Assurance Maladie	<i>Rev Med Ass Mal</i>	Focus on health services research	1970	4	420	235
Santé Publique	<i>Sante Publique</i>	General public health journal	1988	4	980	397
Sciences Sociales et Santé	<i>Sci Soc Sante</i>	Focus on qualitative research in public health	1982	4	1100	175
Revue Canadienne de Santé Publique	<i>Can J Public Health</i>	General public health journal	1943	6	1900	1017

a: Abbreviation used in the text of the article.



**Figure 1** Comparison between the distribution of DALYs in France (year 2002) and of articles from French public health journals (1995–2004) according to three main categories of disease burden

analysis of public health law and regulation. We compared the distributions of references in public health functions in France and Canada.

For both the GBD and the public health functions lists, our aim was to assign one code reflecting the main focus of the article. At the beginning, a set of more than 100 references was coded in parallel by the two authors. Agreement on the GBD classification was substantial ( $\kappa=0.78$ ), but less for the functional classification ( $\kappa=0.60$ ). From this we discussed and agreed indexing rules, which were then applied to all the references by one coder.

## Results

Electronic retrieval produced approximately 8000 references. After removal of duplicates, editorials and letters, the final set for 1995–2004 was 3984 articles. Based on the nationality of the first author, 90% of papers published in French journals originated in France, and 95% of those published in the *Revue Canadienne de Santé Publique* originated in Canada. Significant foreign contributors to the French journals were from African countries, followed by Belgium and Canada.

### Public health publication in the context of health needs

We could assign a GBD code to only 51% of the articles. For the remaining 49% it was not possible to assign a simple

code because their focus was not a single disease, but rather concerned with a health determinant (such as a behaviour or an environmental exposure) or a methodological issue. In a minority of cases, we assigned two GBD codes. Typically, this was when the paper dealt with closely related diseases (e.g. respiratory diseases and malignant neoplasm of the lung). Numbers, percentages and ratios presented in this article are based on the number of codes assigned.

Figure 1 shows the distributions of DALYs in France and of articles from French public health journals (therefore excluding the Canadian Journal) according to the three main categories of disease burden. There is similarity between the distributions, with non-communicable disease causing the greatest burden of disease (84%) and engendering the highest proportion of research (71%). However, there were relatively more publications on communicable diseases, and maternal and perinatal conditions in comparison with the percentage of DALYs that these conditions represent, whereas injuries received less research attention than their share of the burden of disease.

Table 2 presents these findings with details for individual journals. The 'Pub/DALYs ratio' indicator corresponds to the ratio of the percentages of articles divided by the percentage of DALYs. When  $>1$ , this ratio suggests that the topic received a high level of attention relative to its share of disease burden. This appears to be the case for all journals for the communicable, maternal and perinatal conditions category. The very high score observed for *Environnement Risques et Santé* can be put in the context of its focus on environmental risks, which includes microbiological risks. However, more 'general' public health journals such as *Sante Publique* or *Revue d'Epidémiologie et de Santé Publique* still display a fairly high level of interest to this topic (Pub/DALYs ratio of 9.2 and 6.4, respectively). The spread of the Pub/DALYs ratios for the non-communicable diseases category is much narrower (from 0.3 to 1). Both *Archives des Maladies Professionnelles et de l'Environnement* and *Revue Médicale de l'Assurance Maladie* appear to dedicate to this topic an attention commensurate to its share of the disease burden. For injuries, on the other hand, all ratios are significantly low (or even not applicable to *Science Sociales et Santé*, for which not a single article was coded in this category). The overall ratio of 0.4 for all journals reflects the lower level of attention given to injuries in public health research.

**Table 2** Ratios of the percentages of articles in French public health journals (1995–2004) and the percentages of DALYs (2002) according to three main categories of disease burden

	Communicable, maternal and perinatal conditions (5% of DALYs)		Non-communicable diseases (84% of DALYs)		Injuries (11% of DALYs)	
	% of Publications	Pub/DALYs ratio	% of Publications	Pub/DALYs ratio	% of Publications	Pub/DALYs ratio
All French journals	25	5.0	71	0.8	5	0.4
<i>Arch Mal Prof</i>	12	2.5	83	1.0	5	0.4
<i>Env Risques Sante</i>	71	14.4	27	0.3	2	0.2
<i>Rev Epidemio Sante Publique</i>	32	6.4	62	0.7	6	0.5
<i>Rev Med Ass Mal</i>	14	2.8	84	1.0	2	0.2
<i>Sante Publique</i>	45	9.2	50	0.6	5	0.4
<i>Sci Soc Sante</i>	61	12.4	39	0.5	0	-

**Table 3** Distribution of references from public health journals according to public health functions

	Monitoring health and disease (%)	Monitoring health determinants (%)	Health services research (%)	Prevention (%)	Legislation (%)
All French journals	18	46	27	7	1
<i>Arch Mal Prof</i>	10	71	13	5	1
<i>Env Risques Sante</i>	31	58	10	1	0
<i>Rev Epidemio Sante Publique</i>	36	23	31	9	0
<i>Rev Med Ass Mal</i>	19	7	64	9	2
<i>Sante Publique</i>	18	15	47	14	5
<i>Sci Soc Sante</i>	15	23	59	2	1
<i>Can J Public Health</i>	33	24	24	17	1

### Distribution of papers according to public health functions

Assigning a public health function code proved feasible for the majority of references (3921; 98%). However, in 6% of cases, we found it difficult to prioritize between two suggested functions and decided to allocate two codes. (The percentages presented in table 3 and in the text are therefore based on the number of codes assigned).

Taking all French journals together, most papers seem to focus on monitoring, and particularly on monitoring health determinants. This is followed by publications related to health services research, then prevention and lastly legislation. The editorial focus is quite apparent when looking at individual journals. For instance, more than half the papers from *Environnement Risques et Santé* (56%) concerned monitoring the environment, and two-thirds of *Archives des Maladies Professionnelles et de l'Environnement* papers dealt with monitoring occupational exposures. Both *Revue Médicale de l'Assurance Maladie* and *Science Sociales et Santé* have a strong focus on health services research, which was a fairly wide category according to our definition. There was a more even spread of references across public health functions for less specialized journals such as *Revue d'Epidémiologie et de Santé Publique*, *Santé Publique* and the *Revue Canadienne de Santé Publique*. The two remaining functions remain infrequent (prevention) or very infrequent (legislation) topics in these journals. Some contrasts are identifiable between these three journals, such as the stronger interest of the *Revue d'Epidémiologie et de Santé Publique* for health and disease monitoring, the more important focus of *Santé Publique* on health services research and the higher interest given by the '*Revue Canadienne de Santé Publique*' to 'prevention'. Overall, the Canadian journal seems to provide the widest spread of references across public health functions and displays the highest proportion of papers related to prevention.

### Discussion

Our aim was to examine to what extent scientific French public health publications addressed important health needs topics and public health functions. Regarding the health needs classification we could only allocate half of the papers to one of the three categories. Analysing these papers we found that overall there was a degree of similarity between the distributions of articles and DALYs. Both the majority of the publications (71%) and the majority of the burden of disease (84%) were devoted to the non-communicable diseases category. However, the amount of public health research published in French journals is high for communicable diseases, and mother and child health issues, (25% of research: 5% of disease burden) and low for injuries (5% of research: 11% of disease burden). Variations between journals were apparent which reflected their editorial focus. General public health journals such as *Santé Publique* and *Revue d'Epidémiologie et de Santé Publique* displayed a more even spread of references across GBD categories than journals focusing either on a topic (e.g. environment, *Environnement Risques et Santé*) or on a scientific discipline (e.g. social sciences, *Science Sociales et Santé*).

An interpretation of our finding is that research published in French language public health journals partly follows historical trends or traditional domains of public health research such as infectious diseases and hygiene. It is possible that more information, especially related to morbidity, is available or accessible to public health researchers in these domains compared with others, and that this influences the potential for publication. For instance France, like other countries, runs a longstanding notification system for a list of infectious diseases.<sup>5</sup> In the domain of chronic diseases, diseases registers exist in France mainly for cancer, although the population coverage is not high (around 13% for cancers in 2000).<sup>6</sup> Cardiovascular disease registers in France are even scarcer.

Another factor which may explain the distribution of references in public health research is the public/political perception of the topic. Despite the lower level of burden of disease associated with infectious diseases compared with cardiovascular diseases, our impression is that the former ranks higher in terms of perceived public health threat in the public opinion. There is little doubt that in the last 10 years, topics such as AIDS, SARS and avian flu have more often hit the French media headlines than myocardial infarction and stroke. This may reflect the greater aversion to potential threats than to existing problems.<sup>7</sup>

In terms of public health functions, monitoring (health, diseases or determinants) and health services research (broadly defined in this study) accounted for 8 in 10 of all references in French journals. The partition between these functions varied significantly across journals and again reflected editorial focus. In the French journals, only 7% of papers were related to the function of prevention. This is low compared with 17% in the Canadian journal, although the figure for *Santé Publique* is of similar order of magnitude (14%). Publication regarding prevention and health-related legislation is obviously not confined to the selection of journals included in our study. However, given the impact of prevention and legislation on population health such as demonstrated in the fields of road traffic accidents or smoking-related diseases, the level of publication addressing such topics in French public health journal is surprising low.

Using the health outcome list from the GBD, and assigning one code per article, only allowed us to categorize half of the papers for the health needs analysis. We made efforts to increase the validity of indexing which, according to the measure of inter-rater agreement, is at least substantial. France was not the setting for some papers, for example, those addressing the topic of infectious diseases in Africa. Equally, the large majority of papers in the Canadian French language journal were actually published in English (with French abstract also).

As mentioned above, our findings are drawn from an analysis of a selection of the French public health literature. A first issue is that of the substantial amount of literature which did not correspond to our two criteria (peer review and reference in three electronic databases). For instance, the weekly newsletter *Etudes et Résultats*, produced by an agency of the Ministry of Health, often contains articles which would qualify as public health research. The same could apply to *Santé de l'Homme* a specialized journal in health education and health promotion widely read by the professionals in this field, and to the *Revue de Droit Sanitaire et Social* which contains a section on Law and Health. However, the three databases we used are recognized to give the best coverage of public health research literature published in the French language.

With respect to the peer-reviewed, electronically indexed literature, another issue is that of publication bias which is likely to affect public health research as much as it affects other domains of research.<sup>8</sup> There is, however, no apparent reason why this would concern for example, the injuries category more than other categories and therefore publication bias is unlikely to explain the relative gap that we identified for this health needs topic. Finally, only a minority of French public health research is published in French language public health journals. A parallel study<sup>2</sup> within *SPHERE* showed that only about a quarter of public health articles produced from France was published in the French language. It is therefore a question as to whether our findings apply to the wider French public health research.

Underlying our study is the question of how public health research is driven, and more specifically which area of research is funded. In a US-based study Gross *et al.*<sup>9</sup> related

funding from the National Institutes of Health in 1996 to various indicators of health needs for a set of 29 conditions. They found that funding was more closely associated with DALYs than other health needs indicators such as incidence, prevalence, hospital days or mortality. Interestingly, injuries (but also depression, perinatal conditions, stroke and lung disease) received significantly less than their predicted funding based on the amount of associated DALYs, whereas AIDS (and to a lower extent, breast cancer, diabetes and dementia) was very well funded. It is possible that similar mechanisms may have determined how much research on AIDS and injuries was funded in the USA and in France.

Our impression is that the research we have examined is mainly oriented towards observation and the measurement of risk, as opposed to interventions to reduce risk. Intervention trials in the field of public health are not easy to undertake both for methodological and financial reasons. European projects have been successful at building effective co-operation for health monitoring. If the finding of low frequency of prevention studies applies to public health research across EEA countries, then European co-operation could be a means to fill this knowledge gap.

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*Conflict of interest:* None declared.

## Key points

- The distribution of research articles published in French public health journals only partly reflects the distribution of health needs as measured by DALYs.
- Historical trends in public health research and data availability may explain the high amount of interest devoted to communicable diseases and mother and child health issues.
- Injuries as a health needs topic, and prevention as a public health function, appear to be under-represented in French public health literature.

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