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Title page

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

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Abstract

Background

Within the SPHERE project this study focussed on public health references published in French. We tried to identify the focus of this subset of the public health literature in terms of health needs and of public health functions.

Method

References from six French and one Canadian public health journals for the period 1995-2004 were retrieved electronically. We indexed articles according to one main domain of health needs using the global burden of disease headings. Publications were also assigned one of four public health functions: health monitoring, health services research, prevention and legislation.

Results

We identified nearly 4 000 articles. Only 51% could be allocated a health needs code. Proportions allocated to non-communicable diseases, communicable, maternal and perinatal conditions and to injuries were 71%, 25%, 5% respectively. This compared well to the actual burden of non-communicable diseases (84%). However discrepancies were evident for the communicable, maternal and perinatal conditions (low burden of disease compared with publications) and for injuries (high burden of disease compared with publications)

92% of the articles were assigned one function code. Health monitoring and health services research accounted for 8 out of 10 references from French journals. Overall 9% of articles from French journals were related to prevention, which is low compared to the Canadian journal (17%). Only 1% of articles dealt with legislation.

Conclusion

The distribution of articles in French public health journals does not closely follow the distribution of health needs. History and data availability may explain the focus on communicable diseases. Injuries and prevention appeared to be under-researched in this subset of references.

Keywords

Public health, publishing, journal article, research, France.

Introduction

Many drivers may influence the direction of research ranging from cultural background, economic factors, military conflicts, industrial competitions[1]. From a societal point of view however, research would be 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 causes of ill health and should try to identify interventions to combat them. In its first phase the “Strengthening Public Health Research in Europe” (SPHERE) project aimed at assessing the public health scientific literature produced in the European Economic Area (EEA). Within the SPHERE project, a team retrieved public health references in order to compare levels of publication within EEA and between EEA as a whole compared with other parts of the world[2]. Over a ten year period more than 200 000 articles were identified whose contents can not be easily appraised. The remit of our study was to concentrate on the public health literature published in French. We aimed to identify which topics and which public health functions were addressed by this subset of the European public health research literature.

Method

We carried out an analysis of articles published in French public health journals during the period 1995 to 2004. We selected journals referenced in electronic databases, publishing peer reviewed articles in French. Following these criteria, we included six French and one Canadian journal whose main characteristics are presented in table 1. All articles of the Canadian were included in the analysis despite that only a minority are in French (about 5% in 2005). This was to allow comparison between French and Canadian patterns of publication. References of these seven journals were downloaded for the period 1995-2004 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 better coverage of European scientific publications than ISI.

After removal of duplicates editorials and letters, we examined the title and abstract (when available) of 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 for allocating the references to a health needs category[3]. The GBD project provides estimates of the burden of disease both world wide and at individual 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 organised into four level of precision. In this paper we classified the references at the first level of precision which contains three categories :

1. communicable diseases, maternal and perinatal conditions (also contains nutrition deficiencies);
2. non communicable diseases (including cancer, cardiovascular diseases, neuropsychiatric conditions);

3. injuries (intentional and non intentional).

We then compared the distribution of references from French journals across the study period 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 Organisation[4] 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. In the health monitoring category we assigned papers related to the measurement of health, of disease or of their determinants. The health services research was a wide ranging category including health care system, planning, quality, costs, health policy, access to health care. Prevention covered health education, health promotion, screening, immunisation and the treatment of addictions. Legislation included references related to the 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 and only one code reflecting the main focus of the article. At the beginning of the coding process, a set of more than 100 references were coded in parallel by the two authors. Agreement was substantial regarding the GBD classification (kappa = 0,78) but moderate regarding the functions classification (kappa=0,60). From this we discussed in order to finalise the set of indexing rules which were then applied to all the references by one coder.

Results

The electronic retrieval of references brought about 8000 references. After removal of duplicates, editorials and letters, the final set for the 1995 to 2004 period contains 3984 references. Based on the nationality of the first author, 90% of papers published in a French journal originated from France, and 95% published in the *Can J Public Health* originated from Canada. Significant foreign contributors for the French journals were from African countries followed by Belgium and Canada.

Public Health Publication in the context of health needs

We could assign one GBD code to only 51% of the articles. For the remaining 49% it was not possible to assign a single code because their focus was not “single disease oriented” but rather concerned 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 (2%). Typically this was when the paper dealt with closely related diseases (e.g. respiratory diseases and malignant neoplasm of the lung). Number, percentages and ratios presented in this paper are based on the number of codes assigned.

The figure shows the distributions of DALYs in France and of articles from French public health journals (therefore excluding the *Can J Public Health*) according to the three main categories of diseases burden. There is a similarity between the distributions with non-communicable diseases clearly causing the greatest burden of disease (84%) and engendering the highest proportion of research (71%). There is a surplus of publication in the communicable, maternal and perinatal conditions category compared with the percentage of

DALYs, whereas non communicable diseases, and to a larger extent, injuries, receive less attention than their share of the burden of disease.

A similar analysis is presented in table 2 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 superior to 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 *Env Risques Sante* is however to be put in the context of its focus on environmental risks, which includes microbiological risks. More "general public health" publications such as *Sante Publique* or *Rev Epidemio Sante 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 regarding the non communicable diseases category is much narrower (from 0.3 to 1). Both *Arch Mal Prof* and *Rev Med Ass Mal* appear to dedicate to this topic an attention commensurate to its share of the disease burden. This clearly is not case for the injuries category, since all ratios are significantly low, or even not applicable regarding *Sci Soc Sante* for which not a single paper was coded in this category. The overall ratio of 0.4 for all journals reflects well the lower level of attention provided to this topic.

Distribution of papers according to public health functions

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

Among 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 papers from *Env Risques Sante* (56%) concerned monitoring the environment, and two third of *Arch Mal Prof* papers dealt with monitoring occupational exposures. Both *Rev Med Ass Mal* and *Sci Soc Sante* have a strong focus on health services research, which was a fairly wide category according to our definition. The spread of references across public health functions is more even for less specialised journals such as *Rev Epidemiol Sante Publique*, *Sante Publique* and the *Can J Public Health*. 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 *Rev Epidemiol Sante Publique* for health and disease monitoring, the more important focus of *Sante Publique* on health services research and the higher interest given by *Can J Public Health* 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 communicable, maternal and perinatal conditions represent 25% of references, injuries 5% and chronic diseases the remaining 71%. When put in the context of the distribution of the burden of disease, the amount of public health research published in French journal is high for communicable diseases and mother and child health issues, slightly low for chronic diseases, and very low for injuries. Variations between journals were apparent which reflected their editorial focus. General public health journals such as *Sante Publique* and *Rev Epidemio Sante Pub* displayed a more even spread of references across GBD categories than journals focussing either on a topic (e.g. environment, *Env Risques Sante*) or on a scientific discipline (e.g. social sciences, *Sci Soc Sante*).

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[5]. 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)[6]. Cardiovascular diseases registers in France are even scarcer.

Another factor which may explain the distribution of references in public health research is the public/political perception or the topic. Despite the lower level of burden of disease associated to 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[7].

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 to 17% in the Canadian journal, although the figure for *Sante Publique* is of similar order of magnitude (14%). Publication regarding prevention and health related legislation are 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 surprisingly low.

There are limits to our study. Using a health outcome list such as the GBD and assigning one code per reference meant that we could only take into account 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 of a few papers typically addressing the topic of infectious disease in Africa. One could argue that

these references should not have been included in the analysis, but on the other hand, their findings can be of relevance for the whole or to subgroups of the metropolitan French population.

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 specialised 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 recognised to give a good 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[8]. There is however no apparent reasons why it would concern, for example, the injuries category more than other categories. 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 public health journals. A parallel study within SPHERE showed that about a quarter of public health references from France were published in French language. It is therefore questionable whether our findings apply to the wider French public health research. We believe that the under involvements in

injuries, as a health needs topic, and in prevention, as a public health function, are likely to hold.

Underlying to our study is the question of how public health research is driven, and more specifically which area of research gets funded. In a USA based study Gross et al related funding from the National Institutes of Health in 1996 to various indicators of health needs for a set of 29 conditions[9]. They found that funding was more closely associated to DALYs than to other health needs indicators such as incidence, prevalence, hospital days or mortality. Interestingly, injuries (but also depression, perinatal conditions, stroke and COPD) 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 measurement of risk, as opposed to intervention to reduce them. 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 cooperation for health monitoring. If the finding of low frequency of prevention study applies to public health research across EEA countries, then European cooperation could be a means to fill this knowledge gap.

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Conflicts of interest

None declared.

Key-points

- The distribution of references in French public health journals does not closely follow the distribution of health needs as indicated by the global burden of disease.
- Injuries and prevention appeared to be under-researched in this subset of references.
- European collaboration may be needed to develop research in the field of prevention.

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Tables

Table 1

Characteristics of the journals selected for the study

Current title	Abbreviation*	Focus	First published in	Nb of issues (/year)	Nb of subscriptions (2005)	Nb of articles incl. in study
Archives des Maladies Professionnelles et de l'Environnement	*Arch Mal Prof*	Strong focus on occupational health	1938	6	2600	1470
Environnement Risques et Santé	*Env Risques Sante*	Strong focus on environnmental health issues	2002	6	450	105
Revue d'Epidémiologie et de Santé Publique	*Rev Epidemiol Sante Publique*	General with a focus on epidemiology and research	1952	6	850	585
Revue Médicale de l'Assurance Maladie	*Rev Med Ass Mal*	Focus on health services research research	1970	4	420	235
Santé Publique	*Sante Publique*	General public health journal	1988	4	980	397
Sciences Sociales et Santé	*Sci Soc Sante*	Focus on qualitative research in public health	1982	4	1100	175
Revue Canadienne de Santé Publique	*Can J Public Health*	General public health journal	1943	6	1900	1017

**abbreviation used in the text of the article*

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

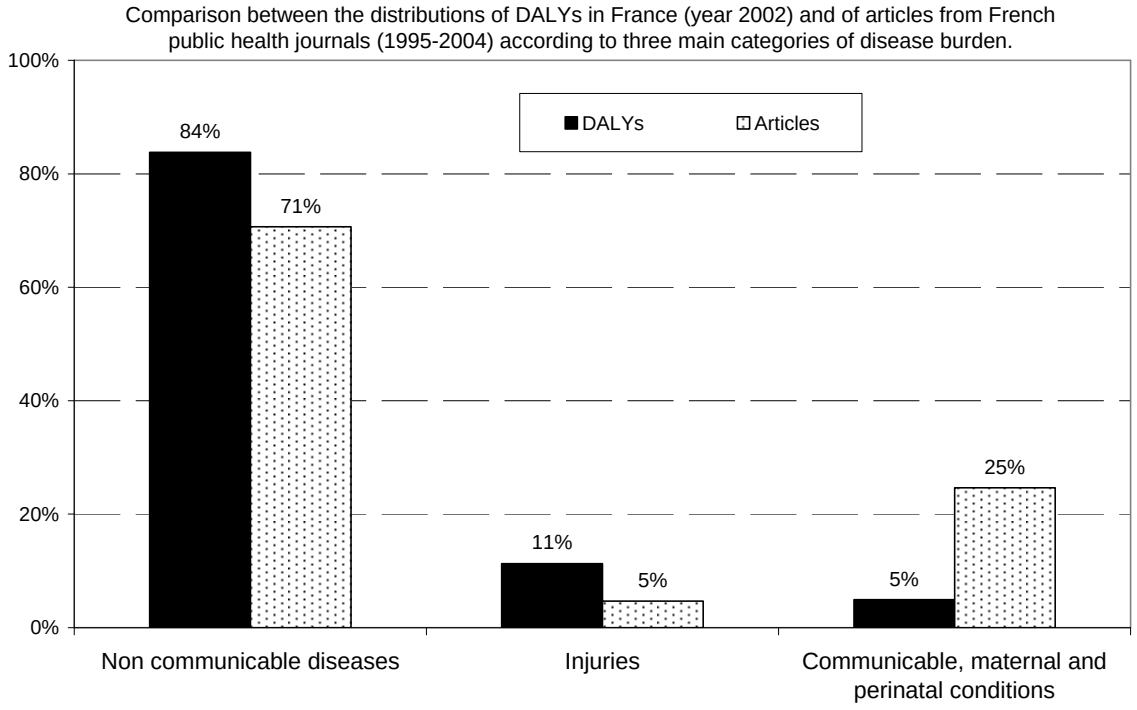
	Communicable, maternal and perinatal conditions *(5% of DALYs)*		Non communicable diseases *(84% of DALYs)*		Injuries *(11% of DALYs)*	
	% of Publications	Pub/DALYs ratio	% of Publications	Pub/DALYs ratio	% of Publications	Pub/DALYs ratio
All French journals	25%	5.0	71%	0.8	5%	0.4
Arch Mal Prof	12%	2.5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

Table 3

Distribution of references from public health journals according to public health functions

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

Figure


Comparison between the distributions of DALYs in France (year 2002) and of articles from French public health journals (1995-2004) according to three main categories of disease burden.
100%
80%
60%
40%
20%
0%
DALYs
Articles
84%
71%
11%
5%
5%
25%
Non communicable diseases
Injuries
Communicable, maternal and perinatal conditions