

# Hazard information needs and information seeking in French workers

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<b>Background</b>	Data about perceived needs of workers for information on occupational hazards or diseases (OHDs) are scarce and the behaviour of workers seeking information on these matters is not well known.
<b>Aims</b>	To describe workers' needs and behaviour in seeking information about OHDs.
<b>Methods</b>	All workers attending for consultation at an occupational health service in Upper Normandy within 1 week were invited to fill in an anonymous questionnaire.
<b>Results</b>	Of the 2640 workers responding 58% declared a need for information about OHD, but only 37% actually sought that information. Whereas 82% of workers mentioned the internet and their general physician (GP) as sources of information on OHD, only 43% mentioned their occupational physician (OP). Furthermore, information received from OPs was not considered more reliable than that from GPs.
<b>Conclusions</b>	Workers report a need for information about OHDs. Although most of them trust information given by OPs, they do not use OPs to obtain OHD information, but instead use less reliable sources such as the internet or their GPs.
<b>Key words</b>	Hazard information; information research; occupational diseases; occupational hazards.

## Introduction

Health literacy is defined by the Institute of Medicine as the 'degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions' [1]. The first step is to obtain information. The Wilson model in information behaviour research suggests that information-seeking behaviour arises as a consequence of a need perceived by an information user, who, in order to satisfy that need, makes demands upon formal or informal information sources or services, which result in success or failure to find relevant information [2]. It applies to occupational health since workers need information or advice about occupational hazards or diseases (OHD). Such needs have been reported to range between 38% of workers, in New Zealand, in 1993, and 70% of workers, in the Netherlands, in 2011 [3,4].

In theory, the information or advice necessary to meet this need is provided through knowledge products (e.g. information on websites, fact sheets, guidelines), experts (physicians, nurses) or employers [5,6]. Nevertheless such information is increasingly obtained via the internet, but a number of barriers prevent people finding it and making effective use of it. These include inadequate skills to search, evaluate and use the information [7]. Information seeking has also been shown to depend on the health status [8], sex, age, educational level [9] of the enquirer and their trust in the information provider [10].

Currently little is known about the information-seeking behaviour of workers and the aims of this study were to answer the following questions:

- (i) Do French workers need information about OHDs, and is it related to their perceived exposures?
- (ii) If so, do these workers seek information or advice on OHDs in an attempt to answer their questions?

- (iii) What factors motivate information seeking?
- (iv) What are the characteristics of the workers seeking information and where do they search for it?
- (v) Among the information sources available, which one do they consider reliable? and
- (vi) As a result of these activities, do French workers obtain the information on OHDs that they require?

## Methods

A group of occupational physicians (OPs) designed the study questionnaire, which was developed partly by adapting existing questions [4,11] and partly by formulating new questions inspired by published studies on a similar topic [12,13]. The first version of the questionnaire was tested for face validity among five employees visiting an occupational health (OH) service in which one of the authors works. Their suggestions were included in the final version of the questionnaire.

The questionnaire was divided into six parts:

- (i) To gather background characteristics of the respondents, 10 questions were included on gender, age, educational level and the size of their employing company.
- (ii) Four questions, using a Likert scale, concerned health status, and whether people felt they were exposed to occupational hazards.
- (iii) Four questions, using a five-point Likert scale, concerned the need for information about OHDs, and whether respondents had sought information on these topics.
- (iv) One question was formulated to assess what sources of information were or would be used if people had a question on OHDs. The sources suggested were journals, the internet, OP, OH nurse, general physician (GP), trade unionists and employer, and more than one answer was accepted.
- (v) One question, using a four-point Likert scale, asked whether people trusted the OHD information they got from these sources.
- (vi) Three questions explored whether respondents had received OHD information during the last 2 years, and if so from which source, and by what means.

The questionnaire was given to all workers attending in 1 week for consultation at one of the 23 OH services in Upper Normandy (a region of France) in 2011. The questionnaire was self-administered in the waiting room prior to the medical examination. No ethical committee approval was sought since this study was based on an anonymous questionnaire that employees could decline to complete.

The percentage of employees who declared they needed information about OHDs was calculated. A bivariate analysis was then performed to determine factors associated with workers' information needs.

The Pearson  $\chi^2$  test and Fisher's exact test were used and odds ratios (OR) with confidence intervals (95% CI) were calculated. Additionally a multivariate analysis using the logistic regression model was performed to test the independent effect of each factor. The same statistical method was used to identify factors associated with workers' information seeking behaviour: the percentage of employees seeking information was calculated, then bivariate and multivariate analyses were performed to identify factors significantly associated with the fact of seeking information. All statistical analyses were conducted with the STATA software program, version 9.0 (Statacorp LP, College Station, TX, USA).

## Results

Two thousand six hundred and forty questionnaires were completed, 2280 from nine in-house OH services and 360 from 14 contractor OH services. Characteristics of the sample are presented in Table 1.

Among the 2640 respondents, 58% declared a need for information about occupational hazards or diseases (49% and 53% respectively) and 37% stated they had sought information in this field. Among 964 workers who declared having sought information the mean number of searches during the previous 3 months was 2.4 [95% CI 2.2–2.6]. Factors related to the need for information and to the search for it are presented in Table 2.

The need for OHD information was significantly associated with perceived exposure to occupational hazards, but not with level of education or with health status.

The search for OHD information increased with age and was significantly associated with perceived exposure to occupational hazards and with the need for information. It was also significantly influenced by health status.

Sources used and levels of confidence in each of them accorded by workers are described in Table 3. Eighty-two per cent of respondents declared they use or would use the internet to find information about OHDs, but 47% declared doubts about reliability of information obtained from the internet. Among these internet users, 97% used a search engine, and 47% a website specializing in OH. Among the respondents, 82% declared they used or would use their GP to obtain OHD information and 88% were confident in information obtained from GPs. The OP was considered as a source of information by only 43% of the respondents but 81% of these had high levels of confidence in information from this source. In France, it is mandatory for companies employing more than 200 workers to have at least one OH nurse. When we analysed the subpopulation of the 441 workers who had access to both an OH nurse and an OP and who answered the question of confidence in the information given by their OH nurse and their OP, we observed that significantly more employees trusted their OP ( $n = 365$ , 83%) than their OH nurse ( $n = 335$ , 76%)  $P < 0.001$ .

**Table 1.** Sociodemographic, professional and medical characteristics of the respondents

	<i>n</i> (%)
Age group (years)	
<30	758 (29)
30–39	674 (26)
40–49	714 (27)
≥50	488 (18)
Gender	
Women	990 (38)
Men	1632 (62)
Scholar level	
No higher education	1210 (50)
Higher education	1204 (50)
Type of job	
Blue collar workers	799 (35)
White collar workers	912 (40)
Line manager	347 (16)
Supervisory workers	209 (9)
Number of employees in the company	
<10	371 (15)
10–50	627 (26)
50–200	549 (22)
>200	909 (37)
Presence of occupational health and safety expertise in the company	
Occupational health nurse	692 (30)
Health and safety practitioner	1222 (55)
Perceived exposure to occupational hazards	
No	1096 (43)
Yes	1442 (57)
Perceived health status	
Bad	318 (12)
Good	2278 (88)
Existence of health problems	714 (27)
Perceived as linked to occupational hazards	295 (11)
Without relation to occupational hazards	419 (16)
Number of medical consultations per year	
0	108 (5)
1–2	1117 (45)
≥3	1246 (50)

Among these workers only 44% actually considered the OH nurse as a source of OHD information.

The part of the questionnaire that studied information passively received by workers showed that 42% of respondents reported having received information about OHDs during the preceding 2 years (51% among workers who perceived being exposed to occupational risks ( $n = 1096$ ) and 29% among other respondents ( $n = 1442$ )). Information had been given to them by their employer (55%), their OP (39%), their GP (35%), an OH nurse (13%) or by other people from the OHS (13%). The means used to provide this information was often oral (83%) and sometimes written (46%).

**Table 2.** Factors related to the need for information about occupational hazards or diseases and to the search for information (multiple logistic regression analysis): significant odds ratios are in bold ( $n = 2640$ )

Factor	Information need	Search for information
	<i>P</i> <sup>a</sup> and adjusted odds ratio (95% CI)	<i>P</i> <sup>a</sup> and adjusted odds ratio (95% CI)
Age (year)	NS	*
<30	1.0	1.0
30–39	1.2 (0.9–1.6)	<b>1.4 (1.0–2.0)</b>
40–49	1.2 (0.9–1.6)	<b>1.9 (1.3–2.7)</b>
≥50	1.3 (0.9–1.9)	<b>2.6 (1.7–3.9)</b>
Gender	*	NS
Women	1.0	1.0
Men	<b>1.3 (1.0–1.7)</b>	0.9 (0.7–1.2)
Educational level	NS	NS
No higher education	1.0	1.00
Higher education	1.0 (0.8–1.3)	0.9 (0.6–1.1)
Type of job	*	NS
Blue collar workers	1.0	1.0
White collar workers	1.0 (0.7–1.3)	0.8 (0.6–1.1)
Line manager	1.0 (0.7–1.4)	1.2 (0.8–1.7)
Supervisory workers	<b>0.6 (0.4–0.9)</b>	0.9 (0.5–1.4)
Number of employees in the company	*	*
<10	1.0	1.0
10–49	1.1 (0.7–1.5)	1.3 (0.8–1.9)
50–199	1.4 (0.9–2.0)	1.6 (0.9–2.5)
≥ 200	<b>1.6 (1.0–2.4)</b>	<b>1.7 (1.1–2.8)</b>
Presence of a nurse in the company	NS	NS
No	1.0	1.0
Yes	1.1 (0.8–1.5)	1.0 (0.7–1.4)
Presence of a health and safety adviser in the company	NS	NS
No	1.0	1.0
Yes	0.9 (0.7–1.2)	1.0 (0.8–1.4)
Perceived exposure to occupational hazards	***	***
No	1.0	1.0
Yes	<b>4.0 (3.2–5.0)</b>	<b>1.7 (1.3–2.2)</b>
Perceived health status	NS	**
Bad	1.0	1.0
Good	0.7 (0.5–1.1)	<b>0.6 (0.4–0.9)</b>
Number of medical consultations per year	*	*
0	1.0	1.0
1–2	1.3 (0.8–2.3)	<b>2.3 (1.1–4.9)</b>
≥3	<b>2.0 (1.1–3.5)</b>	<b>2.5 (1.2–5.3)</b>
Information need about occupational hazards or diseases	–	***
Low	–	1.0
High	–	<b>9.9 (7.2–13.5)</b>

<sup>a</sup>*P*-value (multiple logistic regression analysis): \**P* < 0.05, \*\**P* < 0.01, \*\*\**P* < 0.001, NS: not significant.

**Table 3.** Sources of hazard information used and the level of confidence in these

Sources	Employees using this source, <i>n</i> (%)	% having confidence in the specific source
Internet	1845 (82)	47
Newspapers	303 (16)	32
General physician	1844 (82)	88
Occupational physician	843 (43)	81
Trade union representative	352 (19)	29
Employer	286 (16)	29

## Discussion

This study found that 58% of workers reported the need for OHD information. Factors associated with the perceived need for information were: being male, working in a company employing more than 200 people, being employed as a blue-collar worker rather than a supervisor, having a perception of exposure to occupational hazards and having three or more medical consultations per year. However, we observed that not all employees who felt themselves to be exposed to occupational hazards had questions about OHD. It is therefore ethically important to ensure systematic OHD information provision for all employees. Interestingly we observed that only 37% of respondents in fact searched for OHD information. This is close to the 30% found recently in the Netherlands [4] and confirms that not all workers who perceive a need for information take action as a result. Furthermore, we know that the e-health literacy of patients, and therefore of workers, is sometimes limited, preventing them from identifying reliable information [4].

The internet was one of the two main information providers used (82%), but only 47% of respondents declared that they trusted OHD information found in this way. Searching on the internet is difficult and requires some specific skills to be efficient [16]. Besides, information on the internet is not always reliable, depending on the source of information. One explanation of this low confidence level is probably that employees often used a general search engine (97%) rather than official websites about occupational hazards (47%). This level of confidence could probably be improved if employees used official websites containing reliable information, and addressing specific needs of workers, where they could ask questions and obtain reliable and practical answers, such as those developed in the Netherlands [17].

Nearly 88% of respondents considered their GP as a reliable source of OHD information and 82% actually used their GP as a source of such information. In terms of OH competencies this high level of confidence may be misplaced since French GPs receive a very limited training in occupational medicine (9 h on average) during their undergraduate studies, similar to many other countries [18–22].

Although 81% of respondents considered their OP as a reliable source of OHD information, only 43% actually obtained information from this source. This high level of trust in the OP confirms the results of a recent Dutch study [23]. This apparent contradiction could be explained by the accessibility of each information provider: the internet and GPs are easily accessible whereas many employees do not even know the name of their OP [17]. Nevertheless, we observed that workers who had access to an OH nurse considered them a reliable source of OHD information, which is in accordance with previous studies [24,25]. Despite the fact that OH nurses are much more accessible than OPs, since they work within the worker's company, respondents did not use them to obtain OHD information as much as they could have done. Overall, we observed that confidence was not a reliable predictor of OHD information seeking behaviour.

As regards currently provided OHD information, a relatively small percentage of workers reported having received such information during the previous 2 years (42%). This percentage was not very much higher for employees who felt they were exposed to occupational hazards (51%) although in such cases it is an obligation for employers and OPs to provide workers with OHD information. Employees may have received such information and forgotten it, but if so this suggests that the methods used to inform workers should be improved. Most often such information was given orally (83%) and less frequently in written form (46%). This means of providing information may be difficult to prove in case of legal action and in any case its efficiency is questionable. Providing written information is likely to improve the comprehension and retention of such information by employees.

Our findings are in line with a recent study which found that 70% of Dutch workers had at least one question about OHDs per year [4], but much higher than the needs of New Zealand workers, assessed in 1993 [3]. The difference in information needs observed between Dutch and French workers could be explained by the method used in the Dutch study in which a questionnaire was completed online, which presumably selected people who knew how to use the internet. The low percentage in the New Zealand study may be explained by changes in workers' information needs during the past 20 years.

In France, periodic medical examinations are compulsory for every employee, accounting for 91% of the total workforce [14]. They occur every 2 years, regardless of whether workers feel they have any health problems or are exposed to specific occupational hazards. Therefore, there was no selection bias towards employees with health problems or with specific questions about OHDs and we believe that the sample was representative of employees in this region. The questionnaire was designed by a group of OPs. Despite our efforts in doing so it was not validated, which is a limitation

of our study. The questionnaire was completed in the waiting room, thus avoiding influencing respondent's answers.

Trust in the doctor–patient relationship is considered to be the first prerequisite for good medical care [13,15]. In the field of occupational medicine, trustworthiness is often questioned because of the dual responsibility of the OP to employer and employee, limited access arising from contractual arrangements, the lack of free choice of a doctor for the worker and the infrequency of employee contact with OH service [13]. We therefore wanted to compare trust in OHD information, according to the provider, and respondents' information-seeking behaviour.

In conclusion, a large proportion of workers in this study reported needing information about OHDs, but rarely actively sought such information. Moreover the use of OPs as a source of such information seems to be widely overlooked. This state of affairs could be improved by improving the accessibility of OPs and by demonstration to workers that OH services can be a valuable source of OHD information. Such services could also be involved in the development of specialized websites where workers could ask questions and obtain reliable and practical answers.

### Key points

- In our study of French employees, 58% of respondents reported needing information about occupational hazards or diseases.
- However, only 37% reported having actively sought such information.
- Although most respondents trusted occupational hazard or disease information given by occupational physicians, they tended to use less reliable sources of such information, such as the internet or general physicians.

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### Conflicts of interest

None declared.

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