

# A comparative pilot study of the professional ethical thinking of Quebec pharmacy residents and French pharmacy interns

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**Abstract** *Objective* The main objective of this pilot study is to compare the professional ethical thinking of Quebec pharmacy residents and French pharmacy interns. The secondary objective is to compare the professional ethical thinking of Quebec pharmacy residents and first year French pharmacy interns. *Setting* Hospital pharmacy residents from Quebec, Canada and pharmacy interns from France. *Methods* This is a cross-sectional, descriptive, web-based survey. *Main outcome measure* For this study, professional ethical thinking was defined as the level of agreement/disagreement with statements about pharmacy ethics/dilemmas. *Results* A total of 208 usable questionnaires were completed (response rate 91% in Quebec and 11% in France). There were no significant differences between Quebec residents and French interns for 29/43 items (67%). However, there were significant differences in

their level of agreement with 14/43 items (33%) surveyed by our questionnaire. The differences related to the following themes: economic aspects (four statements), pharmaceutical care, code of ethics, evaluation, clinical research (two statements each) and training and education, dispensing medications (one statement each). There were statistically significant differences between the two groups in terms of exposure to ethics during academic training and experiential practice. There were significant statistical differences between the two groups of first year pharmacy respondents for 11 statements (26%), with only two out of 11 statements being different from those reported in the overall comparison. *Conclusion* Published data on the professional ethical thinking of pharmacy residents and interns remain limited. We believe the higher exposure of Quebec residents to ethics during academic courses and experiential/practical training may have contributed to a higher level of agreement with some ethical statements.

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## Impact of findings on practice

- There are significant differences in the level of agreement with 14 out of 43 items on our survey questionnaire (economic aspects [four statements], pharmaceutical care, code of ethics, evaluation, clinical research [two statements each] and training and education, dispensing medications [one statement each]).
- There are no guidelines about the importance that should be given to professional ethical thinking in pharmacy curricula. Our study highlights ethical thinking from Quebec pharmacy residents and French

pharmacy interns and their background exposure to professional ethical thinking.

## Introduction

The origins of ethics go back at least 2500 years to Hippocrates. The Hippocratic tradition was dominant for two millennia until the middle of the twentieth century with emerging concepts like patient self-determination, informed consent, clinical bioethics, life cycle and economic choices, etc. [1]. Ethics was integrated into health-care practices first through academic medical curricula (Salerno [750], Bologna [1123], Oxford [1167], Paris [1215], etc.) [2]. In North America, the first medical code of ethics was adopted by the American Medical Association in 1847 [3]. The first pharmaceutical code of ethics was adopted by the American Pharmaceutical Association in 1848 [4]. In 2011, most pharmacy associations adopted a code ethics and most state pharmacy acts embedded ethical rules within their legislative framework applicable to pharmacy practice [5].

There are a limited number of publications on pharmacy ethics in the scientific literature. A comparative PubMed search on Feb 20, 2011, using a combination of pharmacy AND ethics as keywords provided 1,146 citations, while a combination of medicine AND ethics as keywords provided 37,021 citations.

Wingfield et al. [6] published a review paper on ethical issues in pharmacy practice from 1990 to 2002. They noted that there is little research in this area, with almost none addressing fundamental philosophical issues or values for pharmacy ethics. Furthermore, there is no dedicated journal and most material relating to pharmacy ethics takes the form of codes or pronouncements from professional bodies, opinions or reflections in textbooks and debates in letters and articles.

Latif [7] suggested that there is a link between moral reasoning scores, social desirability and patient-care performance scores. His work has suggested that theoretical exposure to ethical dilemmas is important and should be implemented early on in pharmacy curricula.

Cooper et al. reviewed the literature about empirical ethics research in pharmacy. They suggested that as pharmacy seeks to develop additional roles with concomitant ethical responsibilities, a “new prescription is needed for empirical ethics research in pharmacy—one that embraces an agenda of systematic research using a plurality of methodological and theoretical approaches to better explore this under-researched discipline.” [8] Among the studies included in their review, many relied on situation scenarios involving ethical dilemmas and independent questions on various ethical issues. They reported two

types of tests that have been used and validated in the literature, namely the Defining Issues Tests (DIT) and the Moral Judgment Interview [9]. Chaar [10] described a different psychometric measure based on the theory of cognitive moral development (Professional Ethics in Pharmacy tool). Most studies have suggested that moral reasoning in professional ethics in pharmacy is a developmental process.

At the CHU Sainte-Justine over the last decade we have conducted a number of comparative studies on different aspects of pharmacy practice in Quebec and France in relation to among other things organization, dispensing, compounding and clinical pharmacy services [11–15]. Discussions between pharmacy residents in Quebec and pharmacy interns in France led us to identify potential differences in the perception of ethics in pharmacy practice.

## Materials and methods

### Objectives

The main objective of this pilot study is to compare the professional ethical thinking of Quebec pharmacy residents and French pharmacy interns. The secondary objective is to compare the professional ethical thinking of Quebec pharmacy residents and first year French pharmacy interns.

### Main outcome measure

For this study, professional ethical thinking was defined as the level of agreement/disagreement with statements about pharmacy ethics/dilemmas.

### Questionnaire

This is a cross-sectional, descriptive, web-based survey. A review of the literature on pharmacy ethics and existing studies on the ethical thinking of pharmacy students and pharmacists allowed us to develop a two-part questionnaire. Eight key themes about pharmacy ethics were identified. The first part of the questionnaire consisted of 16 demographic questions (sex, age, status, country, pharmacy career path, previous exposure to theoretical and practical pharmacy ethics topics). The second part of the questionnaire included 43 statements based on eight ethical themes (training and education, clinical research, advertising and marketing, evaluation, dispensing medications, pharmaceutical care/clinical pharmacy, economic aspects, and code of ethics). For each statement, the respondents were asked to indicate their level of agreement/disagreement based on a 4-item Likert scale (totally agree, partly agree,

partly disagree and totally agree). All the statements were formulated toward a positive wording (i.e., an expected ethical behavior based on current literature and pharmacy codes of ethics). A translation of the 43 statements on the questionnaire is presented in “Appendix”, as the questionnaire used for the study was administered in French. A pre-test questionnaire was administered to a total of ten pharmacists and pharmacy residents/interns from France and Quebec for statement clarification. Ten items were modified following the pre-test. The questionnaire was then published on SurveyMonkey (<http://www.surveymonkey.com/>) between April 5 and May 26, 2008. Respondents were contacted by email on April 5, 2008 with one reminder sent at the end of April 2008. The responses provided were anonymous.

### Study population

The pilot study was designed for Quebec hospital pharmacy residents and French pharmacy interns. In Quebec, the hospital residency program is 16 months long and leads to a post-graduate diploma including 4 months of courses and 12 months of rotations within a hospital. In France, the internship program lasts 4 years and leads to a post-graduate diploma with hospital, industry and biology career path options including courses and internships. The invitation to participate in the study was sent by email to all 2008 Quebec pharmacy residents ( $n = 55$ ) through elected resident representatives from both faculties of pharmacy. The invitation to participate in the study was sent by email to a contact person at the Syndicat des internes en pharmacie des hôpitaux d’Ile-de-France (SIPHIF—<http://www.siphif.org>), who then relayed the invitation to SIPHIF members. We estimated the annual total number of pharmacy interns in France to be around 1,800 [16].

### Statistical analysis

For demographic data analysis, Student *t* tests were used for quantitative variables and Chi-square tests were used for qualitative variables. Chi-square and bilateral Fisher’s exact tests were used to compare the level of agreement (agree vs. disagree) with each statement between both groups. A secondary analysis was conducted between first year French interns and Quebec residents. A value of  $P < 0.05$  was considered statistically significant.

## Results

All the responses were received electronically between April 5 and 18, 2008. Two hundred and forty-nine respondents completed the web-based questionnaire on

SurveyMonkey (Quebec pharmacy residents:  $n = 50$  and French pharmacy interns:  $n = 199$ ). The distribution of French pharmacy interns throughout their curriculum was the following: 1st year ( $n = 54$ ), 2nd year ( $n = 43$ ), 3rd year ( $n = 44$ ) and 4th year ( $n = 58$ ). Of the 249 completed questionnaires, 208 were usable for analysis ( $n = 50$  from Quebec and  $n = 158$  from France). Excluded questionnaires all came from French respondents, since they did not complete the second part of the questionnaire. The response rate was 91% for Quebec respondents and it was estimated to be 11% for French respondents, as we could not confirm the absolute number of French interns reached by email at that time. The respondents’ profiles and demographic data are shown in Table 1.

There were statistically significant differences between the two groups in terms of age (on average, French interns are older than Quebec residents, *t*-test  $P < 0.001$ ) and sex (there are proportionately fewer women respondents in France than in Quebec, *t*-test  $P = 0.005$ ). Also, the career orientation was different between both groups since there are at least three career paths in France versus a single dominant one in Quebec.

There were statistically significant differences between the two groups in terms of exposure to ethics during academic training and experiential practice with a proportionately higher number of Quebec respondents being exposed to ethics in most proposed choices (four out of five academic training themes, five out of five experiential practice themes, Table 1 for *P*-value details). Furthermore, Quebec respondents declared a significantly higher number of hours of exposure to courses related to pharmaceutical ethics during their academic curriculum (37.9 vs. 13.5 h, *t*-test  $P < 0.001$ ).

We compared the overall level of agreement (agree vs. disagree) with each statement on pharmacy ethics between French pharmacy interns and Quebec pharmacy residents. There were no significant differences between Quebec pharmacy residents and French pharmacy interns for 29 out of 43 items (67%). However, there were significant statistical differences between both groups for 14 statements (3, 7, 13, 19, 20, 26, 30, 35, 36, 39, 40, 41, 42, 43) out of 43 (33%) as reported in Table 2. The differences were related to the following themes: economic aspects (four statements), pharmaceutical care aspects, code of ethics aspects, evaluation aspects, clinical research aspects (two statements each) and training and education aspects, dispensing medications aspects (one statement each). We also compared the level of agreement with each statement between the two groups of first year pharmacy respondents, as reported in Table 3. There were significant statistical differences between the two groups for 11 statements (26%), with only two out of 11 statements being different (18, 31) from those reported in the overall comparison.

**Table 1** Demographic profile of the 208 respondents to the Ethics Questionnaire

	France		Quebec		<i>P</i>
	N	%	N	%	
Number of respondents <sup>a</sup>	158	76%	50	24%	
Details on academic year					
France 1st year internship	46	29%			
France 2nd year internship	34	22%			
France 3rd year internship	36	23%			
France 4th year internship	42	27%			
Quebec resident			50	100%	
Number of females	103	65%	43	86%	<i>P</i> = 0.005
Career Orientation					
Hospital	73	46%	47	94%	
Biology	64	41%	0	0%	
Industry	15	10%	0	0%	
Retail	0	0%	2	4%	
Other	6	4%	1	2%	
Ethics course during training	74	47%	49	98%	<i>P</i> < 0.001
Research	57	36%	39	78%	<i>P</i> < 0.001
Relations with the pharmaceutical industry	5	3%	19	38%	<i>P</i> < 0.001
Clinical pharmacy and pharmaceutical care	47	30%	42	84%	<i>P</i> < 0.001
Code of professional ethics	60	38%	46	92%	<i>P</i> < 0.001
Other	5	3%	3	6%	<i>P</i> = 0.40
In practice					
Has already faced ethical issues	87	55%	36	72%	<i>P</i> = 0.03
Estimated having enough perspective/knowledge/ training to make a decision	33	21%	28	56%	<i>P</i> < 0.001
Aware of the existence of an ethics committee	55	35%	30	60%	<i>P</i> = 0.002
Has already submitted a project to an ethics review board	9	6%	25	50%	<i>P</i> < 0.001
Has already had an activity funded by industry					
No, never	68	43%	4	8%	
Yes, once	34	22%	4	8%	
Yes, several times	56	35%	42	84%	
	Avg ± SD	Med (Q1–Q3)	Avg ± SD	Med (Q1–Q3)	
Age (years)	26.0 ± 2.0	26 (24–28)	24.6 ± 2.2	24 (23–25)	<i>P</i> < 0.001
Course received related to pharmaceutical ethics (hours) <sup>b</sup>	13.5 ± 14.0	10 (4.2–20)	37.9 ± 22.7	45 (22–50)	<i>P</i> < 0.001

The results are expressed based on the total number of students who responded in the same country (N = 158 in France and N = 50 in Quebec)

<sup>a</sup> The percentages are expressed based on the total number of respondents (N = 208)

<sup>b</sup> The percentages are expressed based on the total number of respondents who had taken ethics courses (N = 125)

Mean comparison *t* test for the quantitative variables and  $\chi^2$  for the qualitative variables

Avg average, *Med* median, *SD* standard deviation, *Q1* first quartile, *Q3* third quartile

## Discussion

Published data on the professional ethical thinking of pharmacy residents and interns remain limited. Our pilot study relies on two groups of pharmacy interns in France and residents in Quebec. Quebec pharmacy residents are on average 2 years younger than French pharmacy interns

with a higher proportion of females and a shorter curriculum (16 months vs. 4 years). In addition, the French curriculum offers wider career opportunities (hospital, biology, industry and others), while the Quebec curriculum focuses solely on hospital practice. While there are significant demographic differences between the two groups, they both pursue post-graduate pharmacy training with

**Table 2** Statements with a statistical difference in level of agreement between Quebec residents and french interns (all respondents)

Statements	TA (%)	PA (%)	PD (%)	TD (%)	A (%)	D (%)	P value (A vs. D)
<i>Training and education</i>							
Statement 3: The funding of recreational activities for students by the pharmaceutical industry or wholesale distributors must be prohibited							
Quebec	30	34	28	8	64	36	$P < 0.001$
France	11	18	44	28	29	72	
<i>Clinical research</i>							
Statement 7: The pharmaceutical industry must be forced to conduct studies on vulnerable populations (e.g., pediatrics, obstetrics, geriatrics) even if no market is deemed sufficiently profitable or important for the studies							
Quebec	38	44	14	4	82	18	0.033
France	53	39	6	1	92	8	
<i>Advertising and marketing</i>							
Statement 13: The presence of pharmaceutical representatives/visitors in healthcare establishments must be prohibited							
Quebec	6	44	28	22	50	50	0.001
France	2	22	46	30	24	76	
<i>Evaluation</i>							
Statement 19: The sale of natural health products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority							
Quebec	50	40	10	0	90	10	0.004
France	32	37	24	6	70	30	
Statement 20: The sale of homeopathic products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority							
Quebec	40	44	10	6	84	16	$P < 0.001$
France	11	30	26	34	41	60	
<i>Dispensing medications</i>							
Statement 26: Pharmacists must be allowed to refuse to give emergency oral contraceptives if this practice goes against their personal or religious values							
Quebec	12	16	20	52	28	72	$P < 0.001$
France	1	4	10	85	6	94	
<i>Pharmaceutical care/clinical pharmacy</i>							
Statement 30: Explicit and written consent must be obtained from patients before contacting pharmacists or healthcare professionals from another setting (e.g., retail, hospital) to obtain clinical information that concerns them							
Quebec	14	38	34	14	52	48	0.009
France	10	22	39	30	32	68	
Statement 35: Healthcare professionals should declare any relevant adverse drug effect that a patient presents and that they know about							
Quebec	78	16	6	0	94	6	0.044*
France	91	9	1	0	99	1	
<i>Economic aspects</i>							
Statement 36: Financial kickbacks to pharmacists from the pharmaceutical industry that may influence the selection of one medication over another must be prohibited							
Quebec	64	34	2	0	98	2	0.008
France	51	33	14	3	84	17	
Statement 39: We must be able to bill pharmaceutical companies for costs related to handling and managing supply shortages (i.e., price differences, staff training, conveying information)							
Quebec	60	40	0	0	100	0	0.008*
France	41	48	10	2	89	11	
Statement 40: Any assumption of the financial costs related to meals or entertainment offered by the pharmaceutical industry must be refused							
Quebec	28	26	40	6	54	46	0.231
France	13	32	37	19	44	56	
Statement 41: Any assumption of the financial costs related to transportation or lodging by the pharmaceutical industry within the context of a continuing education activity must be refused							

**Table 2** continued

Statements	TA (%)	PA (%)	PD (%)	TD (%)	A (%)	D (%)	<i>P</i> value (A vs. D)
Quebec	24	28	36	12	52	48	<i>P</i> < 0.001
France	3	17	44	35	20	80	
Code of ethics							
Statement 42: Colleagues who practice under the effect of illicit substances must be reported to their professional orders							
Quebec	88	12	0	0	100	0	0.009*
France	32	47	17	4	79	21	
Statement 43: Colleagues who practice in an incompetent manner or dangerously must be systematically reported to their professional orders							
Quebec	84	16	0	0	100	0	0.009*
France	49	39	10	2	88	12	

TA totally agree, PA partially agree, PD partially disagree, TD totally disagree, A = TA + PA, D = PD + TD

\* Fisher's exact test was used to analyze the statement

either an important proportion (46% of French pharmacy interns) or a dominant proportion (94% of Quebec residents) following a hospital career path.

There are no significant differences between Quebec residents and French interns for 29 out of 43 items (67%). This is not surprising, since in modern countries pharmacy curricula and practices share many similarities.

However, there are significant differences in the level of agreement with 14 out of 43 items surveyed by our questionnaire. Looking at the absolute difference between the proportion of Quebec and French respondents in agreement with each of the statements, it varies between minus 10 and plus 43 points (average  $19 \pm 14$ ) for the 14 statements. In all cases but two, Quebec residents supported the proposed ethics statements to a higher extent than did French pharmacy interns. A sub-analysis of first year interns and residents gave similar results with a difference range of 0–45 points and an average difference of  $21 \pm 15$ . Latif suggested that ethical reasoning increases with age and that females have a higher moral reasoning score than do males [17, 18]. While proportionately there are more females in the Quebec resident group (85% in Quebec vs. 65% in France), which could explain their higher level of support for statements, they are on average 2 years younger than the French interns.

It is interesting to explore some of the differences in the level of agreement between the two groups. For instance, Quebec residents expressed higher support levels for a more distant relationship with the pharmaceutical industry (e.g., “Funding of recreational activities for students by the pharmaceutical industry or wholesale distributors must be prohibited” is supported by 64% of Quebec residents vs. 29% of French interns; “Presence of pharmaceutical representatives/visitors in healthcare hospitals must be prohibited” is supported by 50% of Quebec residents vs. 24% of French interns; “Financial kickbacks to pharmacists from the pharmaceutical industry that may influence the

selection of one medication over another must be prohibited” is supported by 98% of Quebec residents vs. 84% of French interns; “Financial costs related to meals or entertainment offered by the pharmaceutical industry must be refused” is supported by 54% of Quebec residents vs. 44% French interns; “Financial costs related to transportation or lodging by the pharmaceutical industry within the context of continuing education activity must be refused” is supported by 62% of Quebec residents vs. 20% of French interns). In Canada over the last decade different events have contributed to the re-definition of relationships between the pharmaceutical industry and healthcare professionals (e.g., illegal or undeclared rebates given to retail pharmacists by the generic industry to pharmacists for product positioning, high marketing expenses from the brand industry to influence prescribers, below market conditions for physicians renting space to pharmacists, etc.) [19–22]. In response to these events, Quebec medical [23] and pharmaceutical [24] codes of ethics were revamped and a voluntary code of ethics was proposed by the association representing the Canadian brand industry (RxD) [25]. While French media were monitoring healthcare professional relationships as well, there were no such changes in the legal pharmacy environment in France or the applicable code of ethics [26]. However, French pharmacy interns expressed higher support for accountability in the pharmaceutical industry for vulnerable populations (e.g., “Pharmaceutical industry must be forced to conduct studies on vulnerable populations even if no market is deemed sufficiently profitable or important for the studies” is supported by 92% of French interns vs. 82% of Quebec residents). Many authors question pharmacist vs. pharmaceutical industry relationships [27–30].

Quebec residents have reported higher support for evidence-based practice (e.g., “Sale of natural health products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory

**Table 3** Statements with a statistical difference in level of agreement between Quebec residents and French interns (only 1st year respondents)

Statements	TA (%)	PA (%)	PD (%)	TD (%)	A (%)	D (%)	P value (A vs. D)
<i>Training and education</i>							
Statement 3: The funding of recreational activities for students by the pharmaceutical industry or wholesale distributors must be prohibited							
Quebec	30	34	28	8	64	36	<b>0.004</b>
France	11	24	39	26	35	65	
<i>Advertising and marketing</i>							
Statement 13: The presence of pharmaceutical representatives/visitors in healthcare establishments must be prohibited							
Quebec	6	44	28	22	50	50	<b>0.001</b>
France	0	17	50	33	17	83	
<i>Evaluation</i>							
Statement 18: Only medications with quality proof of safety and efficacy (i.e., evidence-based medicine) must be used							
Quebec	10	78	12	0	88	12	0.077°
France	35	39	26	0	74	26	
Statement 19: The sale of natural health products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority							
Quebec	50	40	10	0	90	10	<b>0.006</b>
France	30	37	28	5	67	33	
Statement 20: The sale of homeopathic products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority.							
Quebec	40	44	10	6	84	16	<b>P &lt; 0.001</b>
France	9	30	15	46	39	61	
<i>Dispensing medications</i>							
Statement 26: Pharmacists must be allowed to refuse to give emergency oral contraceptives if this practice goes against their personal or religious values							
Quebec	12	16	20	52	28	72	<b>P &lt; 0.001</b>
France	0	0	9	91	0	100	
<i>Pharmaceutical care/clinical pharmacy</i>							
Statement 31: Patients must be adequately informed of all the important adverse effects that may occur when using a medication.							
Quebec	34	62	4	0	96	4	<b>0.045*</b>
France	44	39	13	4	83	17	
<i>Economic aspects</i>							
Statement 36: Financial kickbacks to pharmacists from the pharmaceutical industry that may influence the selection of one medication over another must be prohibited							
Quebec	64	34	2	0	98	2	<b>0.026*</b>
France	41	44	13	2	85	15	
Statement 41: Any assumption of the financial costs related to transportation or lodging by the pharmaceutical industry within the context of a continuing education activity must be refused							
Quebec	24	28	36	12	52	48	<b>0.001</b>
France	5	15	50	30	20	80	
<i>Code of ethics</i>							
Statement 42: Colleagues who practice under the effect of illicit substances must be reported to their professional orders							
Quebec	88	12	0	0	100	0	<b>0.004*</b>
France	41	44	11	4	85	15	
Statement 43: Colleagues who practice in an incompetent manner or dangerously must be systematically reported to their professional orders							
Quebec	84	16	0	0	100	0	<b>0.049*</b>
France	61	30	4	5	91	9	

° “P” value was statistically significant when comparing TA versus PA versus PD versus TD

\* Fisher’s exact test was used to analyze the statement

TA totally agree, PA partially agree, PD partially disagree, TD totally disagree, A = TA + PA, D = PD + TD

authority” is supported by 90% of Quebec residents vs. 70% of French interns; “Sale of homeopathic products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority” is supported by 84% of Quebec residents vs. 41% of French interns). Evidence-based practice has been a key component of medicine and pharmacy curricula over the last decade in North America [31]. In Quebec, the pharmacy curriculum based on an entry-level Pharm. D. degree was completely redefined in 2008 largely on the basis of evidence-based pharmacotherapy [32]. While natural health products have had legal status in Canada since 2004 (note, however, that a significant number of natural health products had not yet been studied by the federal regulatory authority at the time of our pilot study), these products (e.g., natural health products and homeopathic remedies) are not reimbursed by public and private third party payers in Canada, while some of them are covered by public payers in France [33, 34]. Reimbursement can be perceived as state support for these products. There is also higher popular support for homeopathic remedies in France than in Canada. Natural health products and homeopathic remedies illustrate a potential ethical conflict for pharmacists, as their accessibility can be determined either by third party payers that count on evidence-based literature or by patient self-determination and beliefs in so-called non-medical treatment [35, 36].

Quebec residents showed stronger support for freedom of choice for patients and pharmacists based on their beliefs (e.g., “Pharmacists must be allowed to refuse to give emergency oral contraceptives if this practice goes against their personal or religious values” is supported by 28% of Quebec residents vs. 6% of French interns). A revised version of Quebec’s Code of Ethics of Pharmacists allows pharmacists to refuse emergency oral contraceptives, as long as they offer an alternative to the consulting woman (e.g., rapid consultation with a colleague) [24]. While oral emergency contraceptives were available without a physician’s order in France and Canada at the time of this study, pharmacists controlled dispensing modalities by usually keeping the drugs behind the counter. Such control theoretically allows pharmacists to refuse to dispense according to their beliefs. A higher support for refusal on the part of pharmacists in Quebec is probably linked to the allowance embedded in the code of ethics. In France, refusal of oral emergency medicine is prohibited in the Pharmacy Code of Ethics [37, 38].

Finally, Quebec pharmacy residents expressed a higher level of agreement with statements about denunciation of colleagues (e.g., “Colleagues who practice under the effect of illicit substances must be reported to their professional order” is supported by 100% of Quebec residents vs. 79% of French interns; “Colleagues who practice in an incompetent manner or dangerously must be systematically

reported to their professional order” is supported by 100% of Quebec residents vs. 88% of French interns).

While it was not possible to conduct a predictive mathematical model to explain the professional ethical thinking of Quebec or French residents, we believe the higher exposure of Quebec residents to ethics during academic courses and experiential/practical training may have contributed to a higher level of agreement with some ethical statements. According to previous studies, numerous factors can influence the ethical thinking of pharmacy students (e.g. age, sex, family, religious and cultural background, pharmacy training with ethical exposure, ethical fiber of role models, etc.). While this pilot study was not designed to evaluate the contribution of these factors to the development of ethical thinking, it has shown varying levels of agreement among pharmacy residents or interns with 43 different items about ethics in pharmacy. Latif [39] has compared the level of moral development of American and Canadian pharmacy students. While he observed lower scores of moral reasoning with pharmacy students than with other student health professionals, he believed that several health professions have demonstrated that students’ moral reasoning can be significantly enhanced during professional education. Dunn et al. concluded that moral reasoning skills are both teachable and measurable and that ethical dilemma case discussions may enhance moral development [40].

There are no guidelines about the optimal weight given to content on pharmacy ethics in academic training. Exposure to pharmacy ethics content differs between the two countries (an average of 38 h in Quebec vs. 14 h in France). Bumgarner et al. [41] have indicated that pharmacy students should be taught and exposed to ethical dilemmas early on in their pharmacy education. Also, Latif [39] has described the usefulness and impact of teaching ethics to second year pharmacy students. While our pilot study does not capture the timing of students’ exposure to ethical thinking and does not evaluate if the relative exposure of both studied group is enough, we do believe it is an important topic to consider when pharmacy curricula gets reevaluated. Our pilot study may be used as a starting point for discussion between pharmacy residents and interns.

This pilot study has several limitations. While a first year analysis showed similar results in terms of differences in levels of agreement with ethical statements, a study including only hospital pharmacy interns or residents with a sufficient sample size would provide a better comparison. We did not use a validated tool to survey the moral reasoning of pharmacy students but rather surveyed the professional ethical thinking of pharmacy residents and interns. However, the questionnaire used was based on practical issues raised by similar pharmacy residents or interns and the questionnaire was pre-tested to reduce



potential misinterpretations between the two French-speaking pharmacy populations. Also, respondents were not allowed a neutral choice (no opinion). The 4-item Likert scale forced the respondents to support or not support (either totally or partly) a given statement. We allowed multiple respondents from a single computer (e.g., a single individual could have responded more than once, although this seems improbable). This was done for a reason, as pharmacy interns and residents share limited access to personal computers and the Internet.

## Conclusion

Published data on the professional ethical thinking of pharmacy residents and interns remain limited. There were no significant differences between Quebec residents and French interns for 29 out of 43 items. However, there were

significant differences in their level of agreement with 14 out of 43 items surveyed by our questionnaire. The differences related to the following themes: economic aspects (four statements), pharmaceutical care, code of ethics, evaluation, clinical research (two statements each) and training and education, dispensing medications (one statement each). The same questionnaire could be administered to pharmacy residents or interns from other countries to detect cultural or academic differences.

**Funding** None.

**Conflicts of interest** None.

## Appendix

See Table 4.

**Table 4** The 43 ethics-related statements used in the web-questionnaire

### *Training and education*

1. Adequate and sufficient training in applied pharmaceutical ethics must become an integral part of pharmacy education
2. The funding of training activities for pharmacists/pharmacy students by the pharmaceutical industry or wholesale distributors must be prohibited
3. The funding of recreational activities for students by the pharmaceutical industry or wholesale distributors must be prohibited
4. The funding of university activities and infrastructures by the pharmacy industry or wholesale distributors must be prohibited
5. We must encourage the use of corrective software that detects plagiarism and fraud by means of the web or other sources when pharmacy students prepare their assignments

### *Clinical research*

6. Research on stem cells must be allowed to develop novel complementary therapeutic approaches to drug treatments
7. The pharmaceutical industry must be forced to conduct studies on vulnerable populations (e.g., pediatrics, obstetrics, geriatrics) even if no market is deemed sufficiently profitable or important for the studies
8. The pharmaceutical industry must be obliged to carry out studies on orphan diseases even if there is no market that is deemed profitable or important enough to do so
9. We must ensure that financial compensation is given to patients who participate in clinical trials, given the costs associated with the risks and compensation for potential injuries
10. Research teams must be obliged to publish raw data and not only aggregate/analyzed data of the research findings in order to encourage counter evaluations by third parties
11. The pharmaceutical industry must be obliged to conduct a comparative study on safety and efficacy not only against the placebo, but also with respect to the baseline treatment(s) actually used in clinical practice
12. The publication of negative and not only positive clinical and scientific findings must be encouraged

### *Advertising and marketing*

13. The presence of pharmaceutical representatives/visitors in healthcare establishments must be prohibited
14. Advertising prescription medications to the general public must not be authorized when the role it plays is more to promote their use than to provide information and prevent adverse effects
15. Advertising over-the-counter medications including natural health products to the general public must not be authorized when the role it plays is more to promote their use than to provide information and prevent adverse effects
16. Patients must not purchase over-the-counter medications without the physical control of the pharmacist
17. Legal measures are required to oblige the pharmaceutical industry not to withdraw medications from the market when they are not of sufficient commercial interest, but remain necessary for some patients

### *Evaluation*

18. Only medications with quality proof of safety and efficacy (i.e., evidence-based medicine) must be used
19. The sale of natural health products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority

**Table 4** continued

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20. The sale of homeopathic products in pharmacies must be prohibited when their safety and efficacy have not been demonstrated by a regulatory authority
21. Evaluation criteria must be used that are different from those of the drugs used on a large scale for medications used in the treatment of orphan diseases (i.e., considering open studies, the small cohorts studied, etc.)
22. Pharmacists' conflicts of interest must be declared when they sit on drug committees (France) or pharmacology committees (Canada)
- Dispensing medications*
23. Medications must not be used outside clinical trials when their efficacy has not been demonstrated for a given indication
24. Medications that do not have a notice of compliance (NOC/DIN) in Canada or a marketing authorization (AMM) in France must not be used, i.e., special access medications (SAM) in Canada or temporary authorization for use (ATU) medications in France
25. The online sale of medications through Internet pharmacies (retail or through hospitals, if applicable) must be authorized in order to meet new client/patient needs
26. Pharmacists must be allowed to refuse to give emergency oral contraceptives if this practice goes against their personal or religious values
- Pharmaceutical care/clinical pharmacy*
27. Euthanasia must be legalized in order to more clearly manage the use of narcotics and controlled drugs in palliative or terminal care patients
28. Pharmacists must be allowed to adequately inform patients who wish to know the lethal dose of a medication that they have in their possession to end their lives in a palliative care context
29. Explicit and written consent must be obtained from patients to publish in an anonymous way in the literature their reported cases or articles referring to their situations
30. Explicit and written consent must be obtained from patients before contacting pharmacists or healthcare professionals from another setting (e.g., retail, hospital) to obtain clinical information that concerns them
31. Patients must be adequately informed of all the important adverse effects that may occur when using a medication
32. It must be ensured that technical staff members who collaborate in pharmaceutical practice respect patient confidentiality
33. The sale of data from patients' pharmacological records to private companies involved in the sale and marketing of pharmaceutical products must be prohibited even when the data are anonymized
34. The pharmaceutical industry must be prevented from directly contacting or reaching patients, especially by funding self-help groups or lobby groups for specific diseases
35. Healthcare professionals should declare any relevant adverse drug effect that a patient presents and that they know about
- Economic aspects*
36. Financial kickbacks to pharmacists from the pharmaceutical industry that may influence the selection of one medication over another must be prohibited
37. Only medications and products that have conclusive proof of their safety and efficacy must be reimbursed
38. New medications that offer no additional clinical benefit over medications that are already reimbursed or used for the same indication must not be reimbursed
39. We must be able to bill pharmaceutical companies for costs related to handling and managing supply shortages (i.e., price differences, staff training, conveying information)
40. Any assumption of the financial costs related to meals or entertainment offered by the pharmaceutical industry must be refused
41. Any assumption of the financial costs related to transportation or lodging by the pharmaceutical industry within the context of a continuing education activity must be refused
- Code of ethics*
42. Colleagues who practice under the effect of illicit substances must be reported to their professional orders
43. Colleagues who practice in an incompetent manner or dangerously must be systematically reported to their professional orders
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## References

- Teagarden JF. Clinical bioethics in pharmacy practice. Pharmacotherapy self-assessment program. 5th ed. American College of Clinical Pharmacy; 2007 Available from <http://www.accp.com/bookstore/psap7.aspx>.
- The free dictionary. Hippocratic Oath. 2011. Available from <http://www.medical-dictionary.thefreedictionary.com/Oath+of+Hippocrates>. Cited 23 Feb 2011.
- American Medical Association. History of AMA ethics. 2011. Available from <http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/history-ama-ethics.shtml>. Cited 23 Feb 2011.
- Pray WS. Ethical, scientific, and educational concerns with unproven medications. *Am J Pharm Educ*. 2006;70(6):141.
- Berry M. Canadian pharmacy law, vol. I–I. Aurora, ON: Aurora Professional Press—Canada Law Book; 2011.
- Wingfield J, Bissell P, Anderson C. The Scope of pharmacy ethics—an evaluation of the international research literature, 1990–2002. *Soc Sci Med*. 2004;58(12):2383–96.
- Latif DA. The link between moral reasoning scores, social desirability, and patient care performance scores: empirical evidence from retail pharmacy setting. *J Bus Ethics*. 2000;25:255–69.

8. Cooper RJ, Bissell P, Wingfield J. A new prescription for empirical ethics research in pharmacy: a critical review of the literature. *J Med Ethics*. 2007;33(2):82–6.
9. Elm DR, Weber J. Measuring moral judgment: the moral judgment interview or the defining issues test? *J Bus Ethics*. 1994;13:341–55.
10. Chaar BB. Professional ethics in pharmacy practice/developing a psychometric measure of moral reasoning. *Pharm World Sci*. 2009;31(4):439–49.
11. Prot-Labarthe S, Pelletier E, Winterfeld U, Bourdon O, Ville-neuve E, Wood C, Bussièrès JF, Brion F. Comparison of pain management in paediatric surgical patients in two hospitals in France and Canada. *Pharm World Sci*. 2008;30(3):251–7.
12. Prot S, Lavoie A, Bourdon O, Lebel D, Bussièrès JF, Faye A, Brion F. Pilot study about pharmaceutical care implantation in a general paediatric unit in a French hospital. France-Québec collaboration and comparison. *Arch Pediatr*. 2007;14(4):345–53.
13. Prot-Labarthe S, Bussièrès JF, Barret P, Bourdon O, Brion F. Lack of commercial oral drug formulations for children in two hospital group purchasing agreements in France and Canada. *Int J Pharm Compd*. 2008;12(4):365–7.
14. Prot-Labarthe S, Bussièrès JF, Brion F, Bourdon O. Comparison of hospital pharmacy practice in France and Canada: can different practice perspectives complement each other? *Pharm World Sci*. 2007;29(5):526–33.
15. Bussièrès JF, Roy P, Lebel D, Binette MC, Cambar J, Colombel C. Pratique pharmaceutique en France et au Québec: perspectives d'échange ? *J Pharm Clin*. 2002;21:9–13.
16. Conseils scientifiques des concours d'internat (CNCI). 2008. Available from <http://www.cnci.univ-paris5.fr/>. Cited 23 Feb 2011.
17. Latif DA. Assessing the moral reasoning of American pharmacy students. *Pharm Educ*. 2002;2(4):177–83.
18. Latif DA. An assessment of ethical reasoning of US Pharmacy students: a national study. *Am J Pharm Educ*. 2004;68(2):1–10.
19. Ordre des pharmaciens du Québec. Relations commerciales entre médecins et pharmaciens: l'Ordre des pharmaciens réagit à l'Avis de l'Office des professions. 2005. Available from [http://www.opq.org/fr/services\\_public/communiqués/3](http://www.opq.org/fr/services_public/communiqués/3). Cited 17 Oct 2005.
20. Ordre des pharmaciens du Québec. Publication relative à l'éthique professionnelle dans les relations commerciales avec les résidences de personnes âgées. Rapport annuel 2006–2007. 2007. Available from [http://www.opq.org/fr/media/docs/rapport\\_annuel\\_2006-2007\\_16-04-10.pdf](http://www.opq.org/fr/media/docs/rapport_annuel_2006-2007_16-04-10.pdf). Cited 15 June 2007.
21. Poulin A. Saga des ristournes accordées aux pharmaciens : le syndic peut enquêter auprès de tiers. 2007. Available from <http://www.soquij.qc.ca/fr/ressources-pour-tous/articles/saga-des-ristournes-accordees-aux-pharmaciens-le-syndic-peut-enqueter-aupres-des-tiers>. Cited 26 Jan 2007.
22. Assemblée nationale du Québec. Journal des débats. 2007. Available from <http://www.assnat.qc.ca/en/travaux-parlementaires/assemblee-nationale/38-1/journal-debats/20071106/3079.html>. Cited 6 Nov 2007.
23. Can LII. Code de déontologie des médecins. R.Q. c. M-9, r. 4.1. 2011. Available from <http://www.canlii.org/fr/qc/legis/regl/rq-c-m-9-r4.1/dermiere/rq-c-m-9-r4.1.html>. Cited 28 Feb 2011.
24. Publications Québec. Code de déontologie des pharmaciens. Art. 26. Available from [http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/P\\_10/P10R5\\_1.HTM](http://www2.publicationsduquebec.gouv.qc.ca/dynamicSearch/telecharge.php?type=3&file=/P_10/P10R5_1.HTM) (visited June 1st 2010). 23 Feb 2011.
25. Canada's Research-Based Pharmaceutical Companies. 2010. Available from <http://www.canadapharma.org/en/commitment/healthcare/code.aspx>. Cited 31 Dec 2010.
26. Ordre national des pharmaciens. Code de déontologie des pharmaciens. 2009. Available from <http://www.ciopf.org/var/ciopf/storage/fckeditor/File/ciopf-code-de-deontologie-france.pdf>. Cited 31 Dec 2009.
27. Monaghan MS, Galt KA, Turner PD, Houghton BL, Rich EC, Markert RJ, Bergman-Evans B. Student understanding of the relationship between the health professions and the pharmaceutical industry. *Teach Learn Med*. 2003;15(1):14–20.
28. Piascik P, Bernard D, Madhavan S, Sorensen TD, Stoner SC, TenHoeve T. Gifts and corporate influence in doctor of pharmacy education. *Am J Pharm Educ*. 2007;71(4):68.
29. Latif DA. Ethical cognition and selection-socialization in retail pharmacy. *J Bus Ethics*. 2000;25(4):343–57.
30. Ashker S, Burkiewicz JS. Pharmacy residents' attitudes toward pharmaceutical industry promotion. *Am J Health Syst Pharm*. 2007;64(16):1724–31.
31. Google—Netting the evidence. 2011. Available from <http://www.google.com/cse/home?cx=004326897958477606950%3Aadjcbsrxkatm>. Cited 23 Feb 2011.
32. Université de Montréal. Faculté de pharmacie. Doctorat professionnel en pharmacie. 2011. Available from [http://www.pharm.umontreal.ca/etudes\\_cycle1/pharmd.html](http://www.pharm.umontreal.ca/etudes_cycle1/pharmd.html). Cited 23 Feb 2011.
33. Health Canada. Baseline natural health products survey among consumers. 2005 Mar. Available from <http://www.hc-sc.gc.ca/dhp-mps/prodnatur/index-eng.php>. Cited 31 May 2010.
34. PasseportSanté.Net. Homéopathie. 2011. Available from [http://www.passeportsante.net/fr/Therapies/Guide/Fiche.aspx?doc=homeopathie\\_th](http://www.passeportsante.net/fr/Therapies/Guide/Fiche.aspx?doc=homeopathie_th). Cited 23 Feb 2011.
35. Wills S, Brown D, Astbury S. A survey of ethical issues surrounding supply of information to members of the public by hospital pharmacy medicines information centres. *Pharm World Sci*. 2002;24(2):55–60.
36. Johnson T, Boon H. Where does homeopathy fit in pharmacy practice? *Am J Pharm Educ*. 2007;71(1):7.
37. Privatisation du respect de la Convention Européenne des droits de l'homme: faut-il reconnaître un effet horizontal généralisé ? 2007. Available from <http://www.cridho.cpdf.ucl.ac.be/documents/Working.Papers/CRIDHO.WP.2007-3.pdf>. Cited 30 Mar 2007.
38. Santé-Médecine.Net. La contraception d'urgence: la pilule du lendemain. 2009. Available from <http://www.sante-medecine.commentcamarche.net/faq/1188-la-contraception-d-urgence-la-pilule-du-lendemain>. Cited 18 Jul 2009.
39. Latif DA. An assessment of the level of moral development of American and Canadian pharmacy students. *Int J Pharm Pract*. 2004;68(2):1–10.
40. Latif DA. The relationship between ethical dilemma discussion and moral development. *Am J Pharm Educ*. 2000;64:126–33.
41. Bumgarner GW, Spies AR, Asbill CS, Prince VT. Using the humanities to strengthen the concept of professionalism among first-professional year pharmacy students. *Am J Pharm Educ*. 2007;71(2):28.