Pharmacists' perceptions of their working conditions and the factors influencing this: Results from 5 Canadian provinces

Nicole W. Tsao, BSc(Pharm), PhD; Shahrzad Salmasi, BPharm(Hons), MSc ; Kathy Li, PhD; Bob Nakagawa, BSc (Pharm); Larry D. Lynd, BSP, PhD; Carlo A. Marra, BSc(Pharm), PharmD, PhD

NICOLE W. TSAO

We pursued this research to expand our previous work in British Columbia, in order to further evaluate pharmacists' perceptions of their working conditions in 4 other provinces in Canada.

Nous avons mené cette recherche pour étendre notre travail précédent en Colombie-Britannique, afin d'évaluer davantage la perception qu'ont les pharmaciens de leurs conditions de travail dans quatre autres provinces du Canada.

ABSTRACT

Introduction: Our previous study in British Columbia (BC) indicated that pharmacists have a poor perception of their working conditions. The objective of this study is to assess pharmacists' perceptions of their working conditions in 4 other Canadian provinces.

Methods: This was a cross-sectional study across Alberta, New Brunswick, Prince Edward Island and Newfoundland and Labrador, using a survey adapted from the Oregon Board of Pharmacy. Data collected previously from BC were also included in the analyses. The survey was emailed to all pharmacist registrants. Respondents were provided with 6 statements and asked to rate their agreement with them, using a 5-point Likert scale. Statements were framed such that agreement with them indicated

good perception of working conditions. Logistic regression analyses were used to study the relationship between workplace factors on perception of working conditions.

Results: Pharmacists perceived their working conditions to be poor. Pharmacists indicated that they do not have time for break/lunch (48.3% of respondents), work in environments that are not conducive to safe and effective primary care (26.5%), are not satisfied with the amount of time they have to do their job (44.0%) and face shortage of staff (shortage of pharmacists: 33.7%, technicians: 36.4%, clerk staff: 30.3%). Significant factors associated with poor perception were workplace-imposed quotas, high prescription volume, working in chain pharmacies and long prescription wait times.

Conclusion: A high percentage of Canadian pharmacists perceived their working conditions to be poor. Considering the patient-related consequences of pharmacists' poor working conditions and the system-related reasons identified behind it, we call for collaborative efforts to tackle this issue. *Can Pharm J (Ott)* 2020;153:161-169.

Introduction

In recent years, the role of pharmacists has been expanding from medication supplier to provider of clinical services such as medication management, patient counselling and education, immunization and prescription adaptation.¹ In the face

of these changes, there has been growing concern about whether the current pharmacy working environment is adapting to the expanding role of pharmacists and whether it is compromising patient care.²⁻⁸ A study in the United States, for example, found that over half of the community

© The Author(s) 2020

Article reuse guidelines:
sagepub.com/journals-permissions
DOI:10.1177/1715163520915230

KNOWLEDGE INTO PRACTICE

- Pharmacists in the 5 Canadian provinces studied perceive their working conditions to be poor.
- Workplace-imposed quotas for the provision of advanced clinical services were consistently associated with poor perception of working conditions.
- Considering the patient-related consequences of pharmacists' poor working conditions and the system-related reasons identified behind these, we call for a collaborative approach from researchers, employers, national bodies and pharmacists to tackle the issue.

MISE EN PRATIQUE DES CONNAISSANCES

- Les pharmaciens des 5 provinces canadiennes étudiées perçoivent leurs conditions de travail comme étant mauvaises.
- Les quotas imposés sur le lieu de travail pour la prestation de services cliniques avancés sont systématiquement associés à une perception négative des conditions de travail.
- Compte tenu des conséquences pour les patients des mauvaises conditions de travail des pharmaciens et des raisons systémiques identifiées derrière celles-ci, nous appelons les chercheurs, les employeurs, les organismes nationaux et les pharmaciens à adopter une approche concertée pour s'attaquer au problème.

pharmacists working in Oregon chain pharmacies believed that their working condition was not conducive to providing safe and effective patient care.⁹

In Canada, the first study assessing pharmacists' perceptions of their working conditions was conducted by members of our group focusing on pharmacists practising in British Columbia (BC),¹⁰ through an online survey distributed to all College of Pharmacists of BC registrants by email. In that study, we found a poor perception of working conditions among pharmacists, exacerbated by having to meet quotas for advanced professional pharmacy services such as medication reviews, immunizations and prescription adaptations.¹⁰ The objective of this study was to expand our previous work to further evaluate pharmacists' perceptions of their working conditions in 4 other provinces in Canada.

Methods

Study design

This was a cross-sectional study across 4 provinces in Canada: Alberta (AB), New Brunswick (NB), Prince Edward Island (PE)

and Newfoundland and Labrador (NL). Data collected previously in BC (collected in 2013) are also included in the final analyses.¹⁰

Data collection

All pharmacist registrants in each province were sent an email invitation including a description of the survey and an embedded link to the questionnaire. The data were collected from February 26 to April 21, 2016.

Survey instrument

The survey was adapted from the Oregon Board of Pharmacy survey on pharmacists' working conditions in Oregon, United States.¹¹ The survey was customized for every province to make it more relevant to the practices and legislations in each Canadian province. Some questions were common among surveys of all 5 provinces, while other questions were specific to individual provinces. In this article, we have only focused on the questions that were common across all 5 provinces, to enable comparison.

The survey contained basic demographic and practice setting questions. Specifically, respondents were asked to indicate their sex, birth year, number of years as a registered pharmacist, education, primary practice site and primary pharmacy role (Table 1). To assess perceptions of working condition, the respondents were provided with 6 statements regarding their working conditions (Figure 1, Table 2). Using a 5-point Likert scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*), respondents were asked to rate their agreement with the statements. All 6 statements were framed in such a way that agreement with them is indicative of satisfaction with working conditions. The same 6 statements were used for all the respondents across the 5 provinces.

Data analysis

Univariate analyses of demographic variables were examined using means and standard deviations for continuous variables and frequencies or percentages for categorical variables, where appropriate (Table 1).

Bivariate relationships between workplace factors (number of prescriptions per pharmacist per day, prescription wait time, pharmacy type, quotas for clinical services) and the 6 working condition statements were examined. Those variables that were statistically significant at $p < 0.05$ were considered covariates in multivariate models. Logistic regression models with cumulative logit for disagree and neutral levels were used to study the relationship between workplace factors on agreement with the working conditions statements. A separate, independent logistic regression model was constructed for each of the working conditions statements.

For categorical variables, 1 level was chosen as the reference for comparison. For example, the "province" has 5 levels and BC was chosen as the reference. Therefore, the likelihood of agreeing with the working conditions statement in each province is relative to responses from BC. Odds ratios (ORs) and

TABLE 1 Respondents' characteristics*

Respondent demographics	BC (n = 1241)	NB (n = 195)	AB (n = 721)	PE (n = 40)	NL (n = 267)
Sex (male), n (%)	446 (39)	60 (36)	231 (36)	6 (16)	101 (41)
Age, mean (SD), y	42 (12)	45 (13)	41 (11)	42 (8)	41 (11)
Years as registered pharmacist, n (%)					
≤5 years	285 (25)	19 (10)	186 (29)	5 (14)	49 (20)
6-15 years	334 (29)	47 (24)	158 (25)	16 (43)	77 (31)
16-25 years	237 (21)	38 (19)	140 (22)	6 (16)	55 (22)
>25 years	272 (23)	62 (32)	140 (22)	10 (27)	64 (26)
Other	11 (1)	NA	11 (2)	NA	NA
Credentials, n (%)					
BSP	907 (80)	139 (84)	536 (84)	37 (93)	188 (77)
MSc	25 (2)	1 (1)	16 (3)	NA	NA
PharmD	52 (5)	5 (3)	17 (3)	NA	1 (0.4)
MBA/MHA	11 (1)	4 (2)	4 (1)	NA	1 (0.4)
PhD	5 (0.4)	NA	6 (1)	NA	1 (0.4)
Other	137 (12)	17 (10)	56 (9)	5 (7)	54 (22)
Primary practice site, n (%)					
Independent community pharmacy	212 (19)	26 (16)	103 (16)	9 (24)	53 (22)
Chain community pharmacy	658 (58)	111 (67)	358 (56)	24 (65)	175 (71)
Hospital/long-term care	195 (17)	22 (13)	118 (19)	3 (8)	10 (4)
Other (academic institution, research organization, industry, specialty pharmacy)	25 (7)	7 (4)	56 (9)	1 (3)	7 (3)
Primary role, n (%)					
Staff pharmacist	596 (53)	82 (51)	304 (48)	21 (57)	109 (45)
Pharmacy manager	305 (29)	55 (34)	154 (24)	10 (27)	87 (36)
Clinical pharmacist	126 (11)	13 (8)	107 (17)	3 (8)	NA
Other	106 (9)	13 (8)	32 (5)	3 (8)	49 (20)

AB, Alberta; BC, British Columbia; BSP, Bachelor of Science in Pharmacy; MBA, Master of Business Administration; MHA, Master of Health Administration; MSc, Master of Science; NB, New Brunswick; NL, Newfoundland and Labrador; PE, Prince Edward Island; PharmD, Doctor of Pharmacy; PhD, Doctor of Philosophy; SD, standard deviation.

*Respondents were allowed to choose more than 1 option that applied. The number of responses could therefore be greater than the total number of respondents. Respondents could also leave questions unanswered.

95% confidence intervals (CIs) were computed and reported for every variable of interest. All statistical analysis was conducted using SAS software (v9.4; SAS, Cary, NC).

This study was approved by the University of British Columbia Behavioural Research Ethics Board.

Results

Of the 11,767 registered pharmacists who received an invitation to participate, 2464 (21%) responded, 34% of whom were male. All variables were summarized using descriptive statistics (Table 1).

FIGURE 1 Respondents' self-reported agreement with the 6 common working conditions questions

Pharmacists' perceptions of their working conditions

Prior to inferential analyses, Likert scale ratings of the 6 common working conditions statements were collapsed into those who "disagreed" with the statement (rating 1 or 2), those who were "neutral" (rating 3) and those who "agreed" (rating 4 or 5) to ensure sufficient cell sizes to accommodate analysis. Figure 1 represents the pharmacists' responses to each of the questions asked and Table 2 summarizes pharmacists' responses, stratified by province.

Some questions in the survey were left unanswered by some pharmacists. The denominator (total number of responses) therefore varies among provinces and even among questions. Percentage scores were therefore calculated using the respective sample size to improve the interpretability of the data. Figure 1 summarizes respondents' self-reported agreement with the 6 common working condition questions.

The relationship between workplace factors and perceptions of working conditions

The forest plots in Figures 2 to 7 illustrate the associations between workplace factors and agreement with working condition statements based on the findings from the logistic regression constructed for each working condition statement.

Five variables were included in the final model exploring the relationships between workplace factors and having adequate time for breaks/lunch (Figure 2). Of note, reporting having quotas for each of the clinical services was associated with a statistically significant disagreement with the statement related to having adequate

time for breaks/lunch. Those who reported having quotas for medication review services were 53% less likely to agree that they have adequate time for breaks/lunch compared to those that did not. Those who reported quotas for immunization and prescription adaptation were 37% less likely to agree with the statement. Those who received more than 100 prescriptions per pharmacist per day were also less likely to agree with the lunch statement (OR, 0.60; 95% CI, 0.49-0.73) compared to those who received ≤ 100 prescriptions. Pharmacists with over 15 years of experience were more likely to agree with the lunch statement as compared to those with less than 15 years of experience (Figure 2).

Quotas for prescription adaptation and medication reviews and the number of prescriptions filled were also significantly associated with the statement related to amount of time pharmacists have to do their job (Figure 3). Specifically, pharmacists working in an environment that filled < 100 prescriptions per pharmacist or having to meet quotas for medication review or prescription adaptation were 33%, 56% and 46% less likely to agree with the statement "I have enough time to do my job," respectively, relative to those with shorter wait times or no quotas. Pharmacists working in environments with prescription wait times > 20 minutes were 50% less likely to agree with this statement relative to those with shorter wait times. Those working in independent community pharmacies were 1.51 times more likely to agree with having enough time to do their jobs as compared to those working in chain community pharmacies. In other words, pharmacists working in chain pharmacies feel that they have less time to do their job (Figure 3).

TABLE 2 Responses to the 6 common working conditions statements, stratified by province: *n* (%)

	BC				NB				AB				PE				NL			
	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral	Disagree	Agree/ strongly agree	Neutral
I have adequate time for break/lunches at my primary practice site	402 (39.5)	130 (12.8)	485 (47.7)	51 (36.7)	12 (8.6)	76 (54.7)	215 (42.1)	65 (12.7)	231 (45.2)	8 (25.8)	7 (22.6)	16 (51.6)	48 (25.7)	36 (19.3)	103 (55.1)					
I am satisfied with the amount of time I have to do my job	342 (33.6)	218 (21.4)	457 (44.9)	57 (41.0)	19 (13.7)	63 (45.3)	211 (41.3)	99 (10.4)	201 (39.3)	10 (32.3)	6 (19.4)	18 (48.4)	56 (30.0)	38 (20.3)	93 (49.7)					
My employer provides a work environment that is conducive to safe and effective primary care	475 (46.7)	255 (25.1)	287 (28.2)	76 (54.7)	29 (20.9)	34 (24.5)	291 (57.0)	97 (19.0)	123 (24.1)	11 (35.5)	12 (38.7)	8 (25.8)	107 (57.2)	33 (17.7)	47 (25.1)					
My site has adequate pharmacist staff to provide safe and effective patient care	267 (52.3)	238 (23.4)	365 (35.9)	72 (51.8)	21 (15.1)	46 (33.1)	267 (52.3)	90 (17.6)	154 (30.1)	13 (41.9)	8 (25.8)	10 (32.3)	92 (49.2)	34 (18.2)	61 (32.6)					
My site has adequate technician staff to provide safe and effective patient care	326 (32.1)	340 (33.4)	351 (34.5)	32 (23.0)	58 (41.7)	49 (35.3)	193 (37.8)	128 (25.1)	189 (37.1)	9 (29.0)	10 (32.3)	12 (38.7)	49 (26.2)	58 (28.3)	85 (45.5)					
My site has adequate clerk staff to provide safe and effective patient care	463 (45.5)	239 (23.5)	315 (31.0)	81 (58.3)	15 (10.8)	43 (31.0)	246 (48.2)	116 (22.8)	148 (29.0)	13 (42.0)	8 (25.8)	10 (32.3)	98 (52.4)	34 (18.2)	55 (29.4)					

AB, Alberta; BC, British Columbia; NB, New Brunswick; NL, Newfoundland and Labrador; PE, Prince Edward Island.

FIGURE 2 Analysis of the effect of workplace factors on agreement with “I have adequate time for breaks/lunch at my primary area of practice”

FIGURE 3 Analysis of the effect of workplace factors on agreement with “I am satisfied with the amount of time I have to do my job”

Hosp, hospital; LTC, long-term care.

Once again, as illustrated in Figure 4, when pharmacists were asked if they felt their working environment was conducive to providing safe and effective primary care, those with quotas for adapting a prescription or providing medication reviews were less likely to agree with this statement, relative to those who did not report having quotas, while those from independent pharmacies were more likely to agree relative to those from chain pharmacies (Figure 4). Those who reported prescription wait times of more than 20 minutes were also 41% less likely to agree with the good working environment statement. Moreover, pharmacists working in independent, long-term care or hospital pharmacies were more likely to agree with the statement as compared to those working in chain pharmacies. Significant differences were observed between provinces in agreement with this statement. Specifically, pharmacists practising in NL were almost twice as likely to agree and those from AB were 40% more likely to agree with this statement than pharmacists practising in BC (Figure 4).

Question 5 pertained to pharmacists' impressions of the adequacy of pharmacy staff to support the provision of safe

and effective patient care (Figure 5). Once again, having quotas for prescription adaptation or medication review were strongly associated with disagreement with this statement, as was filling >100 prescriptions per pharmacist per day and having a wait time longer than 20 minutes for prescriptions. Respondents from independent pharmacies relative to chains and those practising in AB or NL relative to BC were more likely to feel that they had adequate pharmacist staff (Figure 5).

Respondents were also asked about the adequacy of technician and clerk staff, with consistent responses to both questions (Figures 6 and 7). Having a quota for immunizations or medication reviews and prescription wait times >20 minutes were all, once again, associated with disagreement that they had adequate support staff for the provision of safe and effective care, and those working in independent pharmacies were more likely to agree that they were sufficiently supported relative to those from chain pharmacies. Not unexpectedly, pharmacists working in hospitals or long-term care facilities were also more likely to feel they had adequate technicians.

FIGURE 4 Analysis of the effect of workplace factors on agreement with “My employer provides a work environment that is conducive to safe and effective primary care”

AB, Alberta; BC, British Columbia; Hosp, hospital; LTC, long-term care; NB, New Brunswick; NL, Newfoundland and Labrador; PE, Prince Edward Island.

FIGURE 5 Analysis of the effect of workplace factors on agreement with “My site has adequate pharmacist staff to provide safe and effective patient care”

AB, Alberta; BC, British Columbia; Hosp, hospital; LTC, long-term care; NB, New Brunswick; NL, Newfoundland and Labrador; PE, Prince Edward Island.

Discussion

Overall, our results show that pharmacists in the 5 Canadian provinces studied perceive their working conditions to be poor. Workplace-imposed quotas for the provision of advanced clinical services were consistently associated with poor perception of working conditions. Having a quota for immunizations was significantly associated with pharmacists stating that they do not have time for breaks/lunch and they do not have an adequate number of technicians and clerk staff. Quotas for prescription adaptation or medication reviews were significantly associated with pharmacists stating that they do not have time to do their job or to have breaks/lunch, as well as expressing that there are not enough pharmacists at their primary practice site and that their employer does not provide a work environment that is conducive to safe and effective primary care. In

addition to having to meet quotas, working in a chain relative to an independent pharmacy, having high prescription volume (>100 prescriptions per pharmacist per day) and having longer prescription wait times (>20 minutes prescription) were also associated with poor perception of working conditions.

Overall, almost half of the pharmacists (48.3%) indicated that they do not have adequate time for breaks/lunch at their primary practice site, and 44% expressed dissatisfaction with the amount of time they have to do their job. Staff shortage of both pharmacists and technicians was another common reason behind pharmacists' perceptions of poor working conditions. Having inadequate technician staff appeared to be a concern across all 5 provinces, and the statement regarding having adequate technician staff had the lowest rate of agreement among the 6 working condition statements (BC: 32.1%, NB: 23.0%, AB:

FIGURE 6 Analysis of the effect of workplace factors on agreement with “My site has adequate technician staff to provide safe and effective patient care”

Hosp, hospital; LTC, long-term care.

FIGURE 7 Analysis of the effect of workplace factors on agreement with “My site has adequate clerk staff to provide safe and effective patient care”

Hosp, hospital; LTC, long-term care.

37.8%, PE: 29.0%, NL: 26.2%). Considering the established association between high workload and staff shortage with medication errors,^{6,7,12-15} the findings of this study are concerning.

Given the system-related issues identified in this study associated with poor working conditions, a collaborative approach is warranted to tackle the issue. There are many stakeholders who can play a part to improve the situation: the national bodies, the professional bodies, research institutions, employers and individual pharmacists. At the organizational level, employers should understand the importance of autonomy for pharmacists and appreciate their professional responsibilities and ability to determine when a professional service is required without the constraints of trying to meet quotas. Employers should be educated about the consequences of staff shortages and job dissatisfaction on both the business and patient outcomes. There also needs to be a cultural shift on how “breaks” are viewed by employers. Finally, at the national level, research institutions and national bodies, such as the Canadian Pharmacists Association, need to undertake local

needs assessments of the demographics of the population and the demand for expanded clinical services and develop metrics around the standards to be achieved, to avoid unreasonable quotas.

Strengths and limitations

This is the first study assessing pharmacists' perceptions of workplace conditions across 5 provinces in Canada. Our study captured the perceptions of pharmacists working in very different sectors (chain, private pharmacy and hospital/long-term care) and with a variety of roles (managers, clinical pharmacists and staff pharmacists). The study findings were, however, limited by the very low response rate. It is therefore not possible to state whether these results are generalizable to all pharmacists in these 5 provinces. Moreover, we collected data from only 5 of the 13 provinces in Canada, which, in total, comprise 13,268 registered pharmacists (32% of the total registered pharmacists in Canada),¹⁶ further impeding the generalizability of our results.

Future directions

Future studies should also explore the effect of pharmacists' perceptions of their working conditions on overall job dissatisfaction. Previous research has shown that incidents of job dissatisfaction are more likely to be attributed to external factors such as workplace conditions rather than internal factors.^{15,17} Job dissatisfaction has been associated with many negative outcomes. At the organization level, it can lead to increased turnover, absenteeism, decreased professional commitment and lower quality of work.¹⁸ In a setting like pharmacy, it can lead to lower-quality delivery of health care and, consequently, compromised patient care.¹⁷ The impact of poor working conditions on job satisfaction, organizational level outcomes and clinical key performance indicators (particularly those that can directly affect

patients' safety such as medication errors and near misses) is unknown in Canada.

Conclusion

Pharmacists who responded to the invitation to participate in this study reported a poor perception of their working conditions. A lack of time to do their jobs, inadequate time for lunch and inadequate number of staff were commonly reported by the pharmacists across all 5 provinces. Quotas for clinical services also frequently came up as significant factors reducing pharmacists' perceptions of their working conditions. Considering the patient-related consequences of pharmacists' poor working conditions and the system-related reasons identified behind it, we call for a collaborative approach from researchers, employers, national bodies and pharmacists to tackle the issue. ■

From the Collaboration for Outcomes Research and Evaluation (CORE) (Tsao, Salmasi, Li, Lynd), Faculty of Pharmaceutical Sciences, University of British Columbia; the College of Pharmacists of British Columbia (Nakagawa), Vancouver; the Centre for Health Evaluation and Outcome Sciences, Providence Health Research Institute (Lynd), Vancouver, British Columbia; and the School of Pharmacy, University of Otago (Marra), Dunedin, New Zealand.

Contact larry.lynd@ubc.ca or carlo.marra@otago.ac.nz.

Author contributions: Study conception (Marra, Nakagawa, Lynd), survey development (Tsao, Marra, Lynd, Nakagawa), data collection (Tsao, Marra, Lynd, Nakagawa), data analysis (Li, Salmasi), review of the findings (Salmasi, Tsao, Lynd), interpretations of the findings (Salmasi, Tsao, Lynd, Marra), manuscript preparation (Salmasi, Lynd, Marra, Tsao), manuscript review (Tsao, Li, Lynd, Marra).

Declaration of Conflicting Interests: The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding: This work was supported by a grant from the Newfoundland and Labrador Pharmacy Board, New Brunswick Board of Pharmacy (College of Pharmacists), Prince Edward Island College of Pharmacists and Alberta College of Pharmacy.

ORCID iD: Shahrzad Salmasi <https://orcid.org/0000-0003-1330-3388>

References

1. Mossialos E, Courtin E, Naci H, et al. From "retailers" to health care providers: transforming the role of community pharmacists in chronic disease management. *Health Policy (Amsterdam, Netherlands)* 2015;119:628-39.
2. Samsuri SE, Pei Lin L, Fahrni ML. Safety culture perceptions of pharmacists in Malaysian hospitals and health clinics: a multicentre assessment using the Safety Attitudes Questionnaire. *BMJ Open* 2015;5:e008889.
3. Jacobs S, Hassell K, Ashcroft D, Johnson S, O'Connor E. Workplace stress in community pharmacies in England: associations with individual, organizational and job characteristics. *J Health Serv Res Policy* 2014;19:27-33.
4. Carvajal MJ, Popovici I. Gender, age and pharmacists' job satisfaction. *Pharm Pract* 2018;16:1396.
5. Salmasi S, Wimmer BC, Khan TM, Patel RP, Ming LC. Quantitative exploration of medication errors among older people: a systematic review. *Drugs Ther Perspect* 2018;34:129-37.
6. Salmasi S, Khan TM, Hong YH, Ming LC, Wong TW. Medication errors in the Southeast Asian countries: a systematic review. *PLoS One* 2015;10:e0136545.
7. Alsulami Z, Conroy S, Choonara I. Medication errors in the Middle East countries: a systematic review of the literature. *Eur J Clin Pharmacol* 2013;69:995-1008.
8. Schafheutle EI, Seston EM, Hassell K. Factors influencing pharmacist performance: a review of the peer-reviewed literature. *Health Policy (Amsterdam, Netherlands)* 2011;102:178-92.
9. Oregon Board of Pharmacy. *Assessment of pharmacist comments from the Oregon Board of Pharmacy 2011 "Working Conditions Survey": job satisfaction and patient safety*. Available: https://www.oregon.gov/pharmacy/pdf/BOPmanuscript3_11_13FINAL.pdf (accessed Mar. 13, 2018).
10. Tsao NW, Lynd LD, Gastonguay L, et al. Factors associated with pharmacists' perceptions of their working conditions and safety and effectiveness of patient care. *Can Pharm J (Ott)* 2016;149:18-27.
11. Oregon Board of Pharmacy. *Oregon Board of Pharmacy Workload Survey*. Portland: Oregon Board of Pharmacy; 2013.
12. James KL, Barlow D, McCartney R, Hiom S, Roberts D, Whittlesea C. Incidence, type and causes of dispensing errors: a review of the literature. *Int J Pharm Pract* 2009;17:9-30.
13. Cheung K-C, Bouvy ML, De Smet PA. Medication errors: the importance of safe dispensing. *Br J Clin Pharmacol* 2009;67:676-80.
14. Aldhwaihi K, Schifano F, Pezzolesi C, Umaru N. A systematic review of the nature of dispensing errors in hospital pharmacies. *Integrated Pharm Res Pract* 2016;5:1-10.
15. Felix S. The pharmacists' dilemma. *Pharm Pract Business* 2019;6:28-32.
16. National Association of Pharmacy Regulatory Authorities. *National statistics*. Available: <http://napra.ca/national-statistics> (accessed Mar. 13, 2018).
17. Tweddell SJ, Wright DJ. Determining why community pharmacists leave community pharmacy. *Pharm J* 2000;265:44.
18. Seston E, Hassell K, Ferguson J, Hann M. Exploring the relationship between pharmacists' job satisfaction, intention to quit the profession and actual quitting. *Res Soc Admin Pharm* 2009;5:121-32.