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PHARMACISTS' JOB SATISFACTION AND ITS EFFECT ON DISPENSING PRECAUTION TAKEN AT COMMUNITY PHARMACIES

Gvidas Urbonas[1], Loreta Kubilienė[2], Aušra Urbonienė[3]
[1]Department of Social Sciences and Humanities, Lithuanian University of Health Sciences,
[2]Department of Drug Technology and Social Pharmacy, Lithuanian University of Health Sciences,
[3]Department of Philosophy and Psychology, Kaunas University of Technology

Key words: job satisfaction, dispensing precaution, medication safety.

Summary
Pharmacists being the final safeguard against potentially harmful medication-related problems have moral and legal obligation to take precautions and, if necessary, to intervene the medication process in order protect the community from potential harm due to prescription and dispensing errors. However, pharmacists' dispensing behaviour may be affected by organizational factors, such as job satisfaction. The aim of the study was to apply the Partial Least Squares Structural Modelling Approach to assess pharmacists' job satisfaction and its effect on dispensing precaution taken at community pharmacies in Lithuania. The results showed that pharmacists' satisfaction with salary and promotion significantly affected their dispensing precaution behaviour. Community pharmacies are recommended to consider these aspects as a means of increasing pharmaceutical service quality.

Introduction

Pharmacists are commonly recognized as the final safeguard against medication-related problems [1] and are expected to withhold potentially dangerous prescriptions with significant safety concerns, such as illegibility [2], prescription and dispensing errors [3]. Dispensing precaution is understood as measures taken by a pharmacist "to ensure that the dispensing of a medicine in accordance with a prescription or order is consistent with the safety of the person named in that prescription or order" [4]. Pharmacists have ethical obligation of non-maleficence to prevent harm and legal duty "to refuse to sell/dispense medicinal products if this would be contrary to the pharmacist's principles of professional ethics or may present direct danger to the person's life or cause harm to his health" [5]. Prescription evaluation, refusal to dispense medicines without the prescription, collaboration with the prescriber and, if necessary, intervention is vital [6] and may significantly contribute to public health [7] by protecting patients from potential harm from improper use of medicines. Pharmacists, therefore, are expected to consider patient safety as the essential part of the dispensing process.

Being members of pharmacy organizations pharmacists are bound not only by professional obligations, but are also affected by their organizational environment. Studies show that pharmacists who are satisfied with their work conditions are more motivated to provide pharmaceutical services of higher quality [8]. Monthly income, work experience, and collaboration with managers and colleagues were found to increase pharmacists' satisfaction with job [9]. Also, higher satisfaction with job was significantly related with better patient safety management [10] and, on the contrary, pharmacists dissatisfied with their job may cause threat to the health of society [11].

The aim of the study was, therefore, to employ the Partial Least Squares Structural Equation Modelling approach to (a) explore the determinants of pharmacists' job satisfaction, and (b) to assess the effects of different indicators of job satisfaction on precaution taken at community pharmacies when dispensing medicines.

Materials and methods

Questionnaire development. Community pharmacists' job satisfaction was estimated by assessing the level of pharmacists' satisfaction with salary, promotion, colleagues, and managers. Also a questionnaire was developed to measure how pharmacists took precaution when dispensing medicines if they saw that the medicine was going to be taken inappropriately. During the survey respondents were

Correspondence to: Gvidas Urbonas, e-mail: gvidas.urbonas@gmail.com

Table 1. Descriptive statistics and data validation

Scale			Mo	M	SD	VIF	IW
Dispensing precaution[a]				2.88	1.34		
When dispensing a prescription medicine how often do you:	**Always**	**Never**					
contact the prescriber if questions arise about the prescription?	22.8%	3.0%	4	3.76	1.07	1.05	0.27*
withhold a medicine if you find some errors in the prescription?	45.2%	0.7%	5	4.08	0.98	1.14	0.43*
refuse to sell a prescription medicine without the prescription?	33.1%	0.7%	4	3.97	0.91	1.16	0.43*
withhold a medicine due to illegible prescription?	44.5%	43.1%	5	3.01	1.90	1.14	0.43*
Job satisfaction[a]	**Agree**	**Disagree**					
SatSal: At this pharmacy I earn more than I would earn in other pharmacies.	37.1%	42.5%	4	2.88	1.34		
SatPromo: I'm always promoted here if I do my job properly.	40.8%	49.8%	1	2.75	1.49		
SatCol: I enjoy working with my colleagues at this pharmacy.	90.3%	5.0%	5	4.45	0.80		
SatMgmt: I'm happy with the way the management treats me at this pharmacy.	35.5%	39.5%	3	3.02	1.35		

** – p<0.001.*

Notes: *Mo – mode; M – mean; SD – standard deviation; VIF – variance inflation factor; IR – indicator reliability; IL – indicator loading; IW – indicator weight.*

[a] *Five-point scale ranging from 1 (never) to 5 (always).*

[b] *Five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).*

Table 2. Variance inflation factors for latent variables

	DispPrec	SatSal	SatPromo	SatColl	SatMgmt	Age	Chain	Size
Full collinearity VIF	1.12	1.37	1.34	1.04	1.16	1.12	1.12	1.02
Block variance VIF for Dispensing Precaution		1.21	1.26	1.02	1.14	1.03		
Stone-Geisser Q^2	0.12	0.05	0.02	0.05	0.03			

asked to reflect on their actions when dealing with patients in case of dispensing prescription medicines and to state on a 5-point scale from "never" to "always" how often they were taking precaution in order to avoid drug misuse or abuse.

The study was conducted in Lithuania during the period of October–November 2012. The sample consisted of pharmacists who were improving their qualifications at scientific-practical conferences organized by the Lithuanian University of Health Sciences in the five largest cities of Lithuania. During the study, 350 surveys were distributed to pharmacists and 324 were returned (92.6% response rate). In addition, 25 surveys (7.7%) with missing answers and outliers were excluded from further analysis. After exclusion, a total of 299 surveys were selected for data analysis.

The absolute majority (95.3%) of the respondents were females. The age of pharmacists who participated in the study ranged from 21 to 72 years with 42.4 years (SD=13.3) on the average. Three fourths (74.6%) of the respondents worked in chain pharmacies, while the others came from independent ones. The average size of pharmacies the respondents were working at was 3.4 pharmacy specialists (SD=2.4).

Data analysis. The Partial Least Squares Structural Equation Modelling approach (PLS-SEM) [12,13] was selected to reach the aim of the study and to test the hypotheses. The measure of Dispensing Precaution was created as a formative construct. The variables of job satisfaction, as well as the socio-demographic data were included in the structural model as latent formative variables with single indicators. The validity of the formative measurement models was estimated by assessing indicator reliability, also vertical and lateral collinearity of the data. Indicators with outer weights significant at the 0.05 level were regarded as reliable. The degree of vertical collinearity [14] was assessed by calculating block variance inflation factors for each latent variable with two or more predictors. Full collinearity variance inflation factors were calculated simultaneously for all the latent variables to assess for lateral collinearity in the model. Variance inflation factors of 3.3

or lower suggest the existence of no collinearity in the measurement model [14]. The validity of the structural model was estimated with Stone–Geisser Q-squared coefficients that were calculated for endogenous variables. Acceptable predictive validity is suggested by a Q-squared coefficient greater than zero [15].

Non-linear multivariate statistical analysis software WarpPLS 5.0 [15] was used for data analysis. The software allowed us to conduct the Partial Least Squares Regression analysis with P values being calculated through the jackknife resampling technique. Direct coefficients of association were calculated together with their respective P-values [13], as well as Cohen's f-squared effect sizes [16].

Results

Descriptive statistics showed (Table 1) that the absolute majority of the pharmacists were happy to work with their colleagues (Mo=5), while satisfaction with promotion was reported as the most disappointing area (Mo=1) of their work-life. Less than a half of the respondents reported that they were precautious when dispensing medicines in all cases: almost every second pharmacist always withheld illegible prescriptions or prescriptions with errors; every third respondent never sold a prescription medicine without the prescription and every fourth respondent always contacted the prescriber for a questionable prescription. Only 7.0 percent of the pharmacists reported that they were fully precautious (M=5) on all aspects, and 29.8 percent of pharmacists were always precautious (1<M<5) on at least one aspect of Dispensing Precaution. Almost a quarter (23.7%) of respondents were not always precautious (1<M<4) on any of these aspects, but there were no pharmacists who demonstrated full negligence and never took precaution (M=1) measures on all the aspects of Dispensing Precaution.

The initial step of the data analysis was to assess the validity of the formative measurement model for Dispensing Precaution. The indicators of the construct showed sufficient reliability as the weights of all indicators appeared to be significant at the 0.001 level (Table 1). Variance inflation factors of all the indicators (Table 1), full collinearity variance and block variance inflation factors of the latent variables (Table 2) were below the threshold of 3.3. It allowed us to conclude that the model was free from both vertical and lateral collinearity and the results were not biased by the model-wide multicollinearity.

The structural model with significant paths (Figure 1) showed sufficient predictive validity as all the Stone–Geisser Q-squared coefficient values were above zero (Table 2).

Satisfaction with Salary (f^2=0.02) and Promotion (f^2=0.02) significantly affected Dispensing Precaution behaviour. Among the socio-demographic variables. Age was significantly associated with the variable of Dispensing Precaution (f^2=0.07). Pharmacists' Age was also significantly linked with their Satisfaction with Management (f^2=0.03) and Promotion (f^2=0.02). Pharmacists who worked in chain pharmacies expressed higher Satisfaction with Salary as compared to those working in independent ones (f^2=0.05). Pharmacists working in larger pharmacies expressed lower Satisfaction with Colleagues (f^2=0.04).

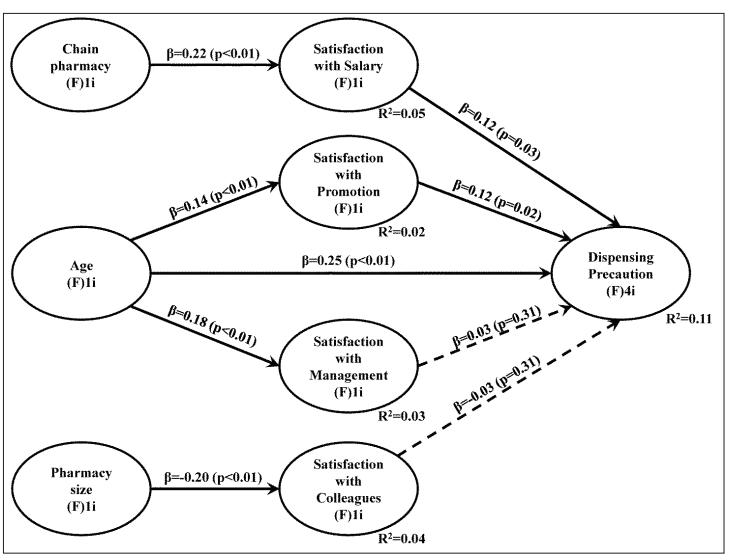

Figure 1. Structural model of the relationships between dimensions of Job Satisfaction, socio-demographic characteristics and Dispensing Precaution

Discussion

The results of our study showed that community pharmacists' behaviour at the pharmacy counter was putting patients at risk for harm due to potentially dangerous dispensing errors: the minority of the pharmacists were withholding potentially unsafe prescriptions in all cases. However, the result was similar to one found by Losey and colleagues who revealed that pharmacists were more likely to get involved in patient counselling process than withhold likely dangerous prescriptions [1].

Illegibility of prescriptions is seen as the most frequent cause of dispensing errors [3]. Two clusters of pharmacists were found in our study: one group reported that they always sold prescribed medicines even if they were not sure about the prescription due to poor handwriting. The other group never dispensed a medicine if they could not read the prescription. The result is alarming,

because pharmacist is liable to safeguard errors made in earlier stages of the prescribing process [6].

A special attention should be given to the problem of dispensing of prescription medicines without the prescription, because only one third of respondents reported that they never sold a medicine without the prescription. The problem seems to be a global one, especially in case of antibiotics: multiple studies found that antibiotics were sold without the prescription in frequent cases [17,18].

The pharmacists who participated in our study were most happy to work with their co-workers and the proportion was higher as compared to the study conducted in 2009, where 83.5 percent of pharmacists were satisfied with their colleagues [19]. Also we found that satisfaction with co-workers depended on pharmacy size: satisfaction started decreasing with the increase in number of pharmacy specialists employed at the pharmacy. Higher satisfaction with colleagues at smaller pharmacies is indicative of collaborative work climate where everyone knows everyone and considers each other's needs.

Satisfaction with earnings and promotion is found to dominate the overall job satisfaction in the developing countries [20]. In our study, satisfaction with salary and promotion had decreased as compared to the results of the study conducted in 2009: 43.7 percent of pharmacists were fully or partially satisfied with their salary, and 37.8 percent of pharmacists thought they were promoted properly if they did their job well [19]. Another finding in our study was that respondents from chain pharmacies remained more satisfied with their wages as compared to the pharmacists working in independent ones. Meanwhile, older pharmacists were happier with the promotion system at the pharmacy. In comparison, a study conducted in the United States found opposite results: older and higher-wage earning pharmacists working at independent practice sites experienced the greatest amount of job satisfaction [21].

A qualitative study in the United Kingdom found that dissatisfaction with the management, especially with non-pharmacist managers, was the main source of dissatisfaction with work [22]. In our study, only a third of respondents were fully or partially satisfied with their managers. However, low level of satisfaction with the management did not affect dispensing precaution behaviour. The finding was inconsistent with the result reported by Grasha: pharmacists who made the fewest mistakes (and those who were most satisfied in their jobs) also rated the quality of their supervision higher [23].

Another finding with our study was that the level of precaution increases with age and, in parallel, with work experience. Similarly, the association between pharmacists' experience and risk was seen as predictable one in other studies: more experienced pharmacists were found to be less likely to make errors [24]. In addition, satisfaction with salary and promotion was found to significantly affect dispensing precaution behaviour in our study. Consistently, Bond and Raehl discovered a negative association between satisfaction with job and the number of dispensing errors [24]. It means that pharmacists who earn less and/or feel not promoted enough are not satisfied with their jobs and, consequently, demonstrate higher professional negligence.

The main implication following from the results of the survey is that financial aspects dominate pharmacists' safeguarding behaviour. Organizations, therefore, are recommended to consider increasing salaries of their staff as well as promoting pharmacists for professional behaviour as a means to improve pharmaceutical service quality at community pharmacies.

Conclusion

1. Pharmacists who worked in smaller pharmacies were more satisfied with their colleagues, and pharmacists who worked in chain pharmacies were more satisfied with their wages. Older pharmacists were more satisfied with their management and promotion.
2. Dispensing precaution behaviour depended on pharmacists' age, also it was affected by their satisfaction with salary and promotion.

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FARMACIJOS SPECIALISTŲ PASITENKINIMAS DARBU IR JO POVEIKIS SAUGIAM VAISTŲ IŠDAVIMUI VISUOMENĖS VAISTINĖSE

G. Urbonas, L. Kubilienė, A. Urbonienė

Raktažodžiai: pasitenkinimas darbu, saugus vaistų išdavimas, saugus vaistų vartojimas.

Santrauka

Farmacijos specialistas kaip paskutinis vaisto paskyrimo ir išdavimo proceso grandinės narys turi moralinę ir teisinę pareigą imtis visų atsargumo priemonių išduodant vaistus, kad apsaugotų pacientus ir bendruomenę nuo galimos žalos dėl netinkamo gydymosi vaistais ar gydymosi netinkamais vaistais. Farmacijos specialisto, kaip vaistinės darbuotojo elgsena priklauso ne tik nuo asmeninių vertybių, bet ir organizacinių veiksnių, pavyzdžiui, pasitenkinimo darbu. Dėl šios priežasties tyrimo tikslas buvo ištirti farmacijos specialistų pasitenkinimą darbu visuomenės vaistinėse ir šio pasitenkinimo poveikį saugiam vaistų išdavimui. Rezultatai atskleidė, kad labiausiai farmacijos specialistai buvo patenkinti darbu su kolegomis. Mažiausiai juos tenkino vaistinėse esanti skatinimų sistema. Darbu su kolegomis labiau patenkinti buvo dirbantieji mažesnėse vaistinėse, uždarbiu – tinklo vaistinių darbuotojai. Vyresnio amžiaus farmacininkai buvo labiau patenkinti vaistinės vadovybe ir skatinimų sistema, taip pat buvo atsakingesni išduodami receptinius vaistus. Nustatyta, kad farmacijos specialistų pasitenkinimas atlyginimu ir vaistinės skatinimų sistema turėjo reikšmingą poveikį jų elgsenai saugiai išduodant receptinius vaistus. Vaistinių vadovams rekomenduojama atkreipti dėmesį į šiuos pasitenkinimo darbu aspektus kaip priemonę pagerinti farmacinės paslaugos kokybę ir užtikrinti saugesnį vaistų išdavimą visuomenės vaistinėse.

Adresas susirašinėti: gvidas.urbonas@gmail.com

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