

COUNSELLING OF PREGNANT WOMEN AT THE PHARMACY ABOUT RATIONAL USE OF MEDICINAL SUBSTANCES: ASSOCIATION WITH AGE AND EDUCATION OF PHARMACY SPECIALISTS

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Key words: counselling, pharmacy specialist, pregnancy, education, age.

Summary

Pharmacy specialists are responsible for counselling about rational use of medicinal substance in society, but not all of them provide advice for the patients. So the aim of this study was to analyze the association between counselling of pregnant women at Lithuanian pharmacies about rational use of medicinal substances and pharmacy specialist's age and educational background.

Methods. Random sample of Lithuanian pharmacy specialists (N = 440) was anonymously questioned during the period of March-October, 2012. "FIP reference paper on the effective utilization of pharmacists in improving maternal, newborn and child health" was used for the development of questions about the counselling of pregnant women about rational use of medicinal substances.

Results. The odds ratio of more frequent counselling was higher in the case of millennial generation comparing with baby boomers (OR = 3.521 (CI 95% = 6.135 – 2.020)). Higher proportion of pharmacists, compared to pharmacy technicians (p < 0.05), were counselling about rational use of synthesized medicinal substances and non-pharmacological alternatives (millennial generation) and almost all topics of rational use of medicinal substances (baby boomers).

Conclusions. Age was associated with the frequency of counselling about rational use of medicinal substances. Age and educational background was associated with counselling topics during pregnancy.

Introduction

Medicinal substances are "any substances which are used for health irrespective of origin" [1]. WHO declares

that rational use of medicinal substances should be understood as the use according to the indications and with lower price [4]. Rational use of medicinal substances includes: rational use of synthesized, herbal medications, supplements as well as non-pharmacological alternatives to reduce unnecessary drug use. Medicinal substances are not the same products as other goods. Irrational use of medicinal substances could cause adverse drug reactions and iatrogenesis [2-3]. The professional counselling is necessary for rational use of medicinal substances in society.

According to current pharmacy practice legislation in Lithuania all synthesized medicinal substances should be dispensed at the pharmacies. Other types of medicinal substances could be sold there also [5]. Current legislation of pharmacy practice in Lithuania aims to prevent irrational use of medicinal substances [6]. According to the legislation, pharmacy specialist should review patient's self-diagnosis, inform the patient about possible adverse effects and drug interactions, and instruct the patient on drug administration or suggest alternatives. Sometimes it is even necessary to refuse to sell drugs and to advise patients to see their general practitioner for medical diagnosis.

One of the most sensitive groups of patients is pregnant women. Researchers have found that they do not always inform physicians or midwives about medicinal substances they are using [7-8]. And the most frightening adverse reaction to the medicinal substance is teratogenicity [9].

Pharmacy specialist is in the ideal position because she is the last specialist, who dispenses the product and has an opportunity to advice during pregnancy. But not all pharmacy specialists are counselling pregnant women about rational use of medicinal substances. So it is important to analyze the relationship between counselling at the pharmacy and pharmacy specialist's characteristics. This would help to find target groups of pharmacy specialists, which need more education and support to improve their activities.

The aim of this study is to analyze the association between counselling of pregnant women at Lithuanian

pharmacies about rational use of medicinal substances and pharmacy specialist's age and educational background.

Materials and methods

Representative sample of Lithuanian pharmacy specialists (population N = 4716) was questioned from March to October, 2012. Only one pharmacy specialist from the pharmacy was asked to fill in the questionnaire. Pharmacies were selected randomly from National Drug Agency database of the registered community pharmacies. In sum, 440 respondents from randomly selected pharmacies have

filled in the anonymous questionnaires. Response rate was 84.6%.

FIP reference paper on the effective utilization of pharmacists in improving maternal, newborn and child health (MNCH) [10] was used for the development of questions about the counselling of pregnant women. The five-step scale (every day, every week, every month, rarely than every month, never) was used for evaluation of the frequency of counselling. The Cronbach's α showed good internal consistency of questionnaire (Cronbach's α was 0.925).

Pharmacy specialists were asked to mark their educational background: pharmacist (master's degree at the university) or pharmacy technician (professional bachelor's degree at the college) and to write their age. During the analysis, the age groups were classified following the generation theory developed by Howe and Strauss [11]. According to the theory respondents were classified in birth cohorts: millennial generation (> 1981); X generation (1961-1981); baby boomers (1943-1960); silent generation (1925-1942).

Statistical analysis was conducted by applying Chi-square χ^2 test and Fisher's Exact test, ordinal logistic regression and binary logistic regression. Odds ratio (OR) (with 95% confidence intervals (CI)) was calculated.

Lithuanian Bioethics committee stated that approval for the present research was not necessary according to Lithuanian law.

Results

Respondents were mostly women (91.2%), 22-73 years old (mean 44.28; median 47.0; mode 50). Half of them (53.4%) were working in the five biggest Lithuanian cities; 35.5% - in small cities; 8.9% - in villages and 2.4% have not identified their working place. Most of them (76.6%) were working at the pharmacy chains, 16.8% - at the independent pharmacies, eleven respondents (2.5%) - at the governmental pharmacy and 4.2% - missing. Half of respondents (45.0%) were pharmacists and 42.3% were pharmacy technicians. Some of respondents (12.7%) have not marked their education.

It was found that the odds ratio of the more frequent consultation was higher in the case of millennial generation, compared to baby boomers (Table 1).

The topics of consultation about ratio-

Table 1. Ordinary regression* for the frequency of consultation at the pharmacy about rational use of medicinal substance

Independent factor		OR	95% CI	p value
Generation	Baby boomers	1		
	X generation	1.969	3.003 – 1.289	0.002
	Millennial	3.521	6.135 – 2.020	< 0.001

*the generation and educational background of pharmacy specialists were in the model.

Table 2. Characteristics of pharmacy specialists

Generation	Education		χ^2 /Fisher's Exact test's p value
	Pharmacists, N (%)	Pharmacy technicians, N (%)	
<i>Counselling about rational use of synthesized medicinal substances</i>			
Millennial	48 (98.0)	17 (81.0)*	0.026
X generation	74 (77.9)	70 (71.4)	0.302
Baby boomers	37 (77.1)	33 (55.0)*	0.025
<i>Counselling about rational use of herbal medicinal substances</i>			
Millennial	48 (98.0)	18 (85.7)	0.078
X generation	74 (77.9)	70 (71.4)	0.302
Baby boomers	39 (81.2)	33 (55.0)*	0.001
<i>Counselling about rational use of supplements</i>			
Millennial	49 (100.0)	19 (90.5)	0.087
X generation	77 (81.1)	79 (80.6)	0.938
Baby boomers	40 (83.3)	39 (65.0)*	0.048

* $p < 0.05$ compared with pharmacists

Table 3. Binary logistic regression model* for counselling at the pharmacy about non-pharmacological alternatives

Independent factors	Counselling about non-pharmacological alternatives, OR (95% CI)
<i>Education:</i>	
Pharmacy technicians	1
Pharmacists	1.906 (1.202 – 3.023)
<i>Generation:</i>	
Baby boomers	1
X generation	1.700 (1.040 – 12.781)
Millennial	5.537 (2.399 – 12.778)

*enter method was used; the generation and educational background of pharmacy specialists were in the model.

nal use of medicinal substances were compared. Research results showed that higher proportion of pharmacists (compared with pharmacy technicians) from millennial and baby boomer generations were counselling about rational use of synthesized medicinal substances. The baby boomer pharmacists more often reported that they were counselling about rational use of herbal medicinal substances and supplements, compared to pharmacy technicians (Table 2). There were no statistically significant differences between the generations in the case of counselling about folic acid use during pregnancy.

The counselling about non-pharmacological alternatives at the pharmacy was associated with educational background ($p < 0.05$) and generation ($p < 0.05$) of pharmacy specialists. Binary logistic regression model was developed to compare independent impact of each factor.

Binary regression model has shown that odds ratio of counselling about non-pharmacological alternatives was higher in millennial and X generations and among pharmacists (Table 3).

Discussion

The association between educational background and counselling at the pharmacy was analysed in Europe Union as well as in the United States of America (USA). The researchers in Germany have found that the odds ratio of counselling about rational drug use was 3.2 (CI 1.88 – 8.81), if the pharmacists are providing the pharmacy service, compared to pharmacy technicians [12]. Research in the USA, based on mystery shopper method, disclosed that statistically significant higher proportion of pharmacists were providing counselling about rational drug use than staff with lower educational background [13]. Results from the study presented in this article also showed that higher proportion of pharmacists is providing counselling about rational use of all types of medicinal substances: drugs, herbal remedies, supplements and non-pharmacological alternatives, compared to pharmacy technicians.

Researchers from Sweden have found that baby boomers are associated with poor counselling, compared to younger generations (OR = 2.10, (95% CI=1.18-3.43)) [14]. Tully and the colleagues have interpreted this finding as evidence of lack of education about counselling. The research in the USA has shown that X generation were more likely (OR = 2.20 (95% CI = 1.11 – 4.35)) to inform about the risks of medication use and were more likely (OR = 2.32 (95% CI = 1.33 – 4.06)) to provide understandable information to the patient, compared to the older generation (baby boomers) [15]. Researchers interpreted this finding as lack of education in the field of patient counselling: X and millennium

generation had special courses about patient counselling at the university and baby boomers hadn't. Results from the study presented in this article showed that younger respondents were more frequently counselling about rational use of medicinal substances than baby boomers.

The differences associated with educational background and found among generations support hypothesis discussed by Svarstad and the colleagues. They found that educational background and age group are associated with counselling at the pharmacy. The researchers argue that changes of paradigms in pharmacy practice from drug compounding and selling toward development of patient care at the pharmacy have influenced the changes in pharmacy education syllabi in universities in the USA [15]. This process could be noticed in Lithuania also. On the other hand, despite the same postgraduate education for all generations, older persons are less able to use electronic resources for their personal continuing education [16]. So the counselling about rational use of medicinal substances during pregnancy could be improved by designing strategies to support professional development among pharmacy technicians and among pharmacy specialists from older generation.

Conclusions

1. The present study demonstrates that frequency of counselling about rational use of medicinal substances was associated with pharmacy specialist age: millennial and X generations were more likely to provide more frequent counselling than baby boomers.

2. The consultation topics were associated with educational background and generation of pharmacy specialists: higher proportion of pharmacists of millennial generation was counselling about rational use of synthesized medicinal substances and non-pharmacological alternatives; higher proportion of pharmacists of baby boomers was counselling about almost all topics of rational use of medicinal substances, except counselling about use of folic acid.

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NĖŠČIŪJŲ KONSULTAVIMO VAISTINĖSE APIE RACIONALŲ VAISTINIŲ MEDŽIAGŲ VARTOJIMĄ SĄSAJOS SU FARMACIJOS SPECIALIŠTŲ IŠSILAVINIMU IR AMŽIUMI

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Raktažodžiai: farmacijos specialistas, konsultavimas, nėštumas, išsilavinimas, amžius.

Santrauka

Farmacijos specialistai atsakingi už visuomenės konsultavimą racionalaus vaistinių medžiagų vartojimo klausimais, tačiau ne visi specialistai šį klausimą aptaria su savo pacientais. Šio tyrimo tikslas yra išanalizuoti nėščiąjų konsultavimo (Lietuvos vaistinėse) racionalaus vaistinių medžiagų vartojimo klausimais sąsajas su farmacijos specialistų amžiumi bei išsilavinimu.

Metodai. Atsitiktinė reprezentatyvi Lietuvos farmacijos specialistų imtis (N = 440) buvo anonimiškai apklausta 2012 m. kovo-spalio mėn. Klausimynas buvo sudarytas, remiantis Tarptautinės farmacijos federacijos dokumentu „Efektyvus vaistininko panaudojimas gerinant motinos, naujagimio ir vaiko sveikatą“.

Rezultatai. Dažnesnio konsultavimo galimybė buvo didesnė tarp tūkstantmečio kartos farmacijos specialistų, nei vaikų bumo kartos atveju (GS=3,521 (PI 95%=6,135 – 2,020). Didesnė tūkstantmečio kartos vaistininkų, nei farmakoteknikų proporcija (p<0,05) konsultavo racionalaus susintetintų vaistinių medžiagų vartojimo ir nefarmakologinių alternatyvų klausimais. Didesnė vaikų bumo kartos vaistininkų proporcija (p<0,05) konsultavo beveik visais racionalaus vaistinių medžiagų vartojimo klausimais. Statistiškai patikimo skirtumo tarp X kartos vaistininkų ir farmakoteknikų nenustatyta.

Išvados. Jaunesnis farmacijos specialistų amžius buvo susijęs su dažnesniu nėščiąjų konsultavimu Lietuvos vaistinėse. Taip pat farmacijos specialistų amžius ir išsilavinimas buvo susiję su nėščiąjų konsultavimo apie racionalų vaistinių medžiagų vartojimą tematika.

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