



The Emerging Roles of Pharmacists in Selected Tertiary Hospitals in Pangasinan and La Union: Focus on Pharmaceutical Care and Pharmacovigilance

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Research Article

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Abstract

This study aims to assess and analyse the evolving roles of hospital pharmacists in the provinces of Pangasinan and La Union, particularly in the discipline of pharmacovigilance and pharmaceutical care. A first set of questionnaires were distributed by chance sampling to pharmacists aged 21 – 30; pharmacists aged 31 and above, nurses and physicians to assess the progress of the practice of pharmacovigilance and pharmaceutical care in 9 tertiary hospitals. A second set of questionnaires determined how nurses, physicians and out-patients evaluate pharmacists on their perceived roles in these 2 disciplines. The survey showed that older hospital pharmacists are more engaged in the disciplines of pharmacovigilance and pharmaceutical care than their younger counterparts, nurses and physicians. The areas of greater significance include ADR monitoring, drug information dissemination, patient consultation, MH review and QA. Both groups of nurses and physicians are significantly satisfied with hospital pharmacists in delivering pharmacovigilance services and pharmaceutical care while out-patients are satisfied only with these pharmacists in rendering pharmaceutical care services. The perceived evolving roles of hospital pharmacists in Pangasinan and La Union in pharmacovigilance and pharmaceutical care have been identified and assessed and that the scope of their practice are relevant and show promise.

Keywords *Pharmacovigilance, pharmaceutical care, La Union, Dagupan City, tertiary hospitals*

Introduction

The clinical roles of Filipino pharmacists during the last decade has been more clearly defined due to several reasons, such as strengthening the position of Clinical Pharmacy in the bachelor's curricula, the continuous provision of continuing education sponsored by private drug firms and professional societies (1), increasing internet access and recognition of pharmacists' roles as experts on drug information. In the rural settings, however, more efforts have to be done to recognize these roles as most hospital pharmacists are still accustomed to routine dispensing procedures. This study was undertaken to assess, by both qualitative and quantitative parameters, the clinical roles of pharmacists in selected tertiary hospitals in the provinces of Pangasinan and La Union and to determine their perception on these roles.

Materials and Method

Quantitative Parameters

A first set of questionnaires were distributed by chance sampling to pharmacists-on-duty at selected hospitals at any time of the day for 5 days (Monday to Friday) (2). The same questionnaires were given similarly to nurses-on-duty and physicians acting either as residents or consultants. Questionnaires were distributed by professional medical representatives, drug salesmen, residents and consultants.

The questions were patterned to give the respondents optimum number of choices (7-point Likert scale) for particular assessments or perceptions of pharmacists' roles (3). The 4-page questionnaires were divided into 2 major disciplines, namely: (a) pharmaceutical care which includes the aspects of clinical pharmacy, patient counselling and drug information dissemination; and (b) pharmacovigilance which includes quality assurance in dispensing, drug utilization review, adverse drug reaction and drug interaction monitoring. It also contains questions on how these professionals prioritize all the major aspects of these 2 disciplines.



Another set of questionnaires were distributed to the same group of nurses, physicians in addition to out-patients to determine their assessment on these perceived roles of hospital pharmacists.

Qualitative Measures

Qualitative methods such as chance interviews were performed and were focused on determining problem areas or impediments to the roles of hospital pharmacists in delivering pharmaceutical care. Observations in the physical set-up and work flow of the pharmacies and job descriptions were done to see if these impediments are present. Observations in the different wards were done to determine in-patient activities of these pharmacists.

Statistical Analyses

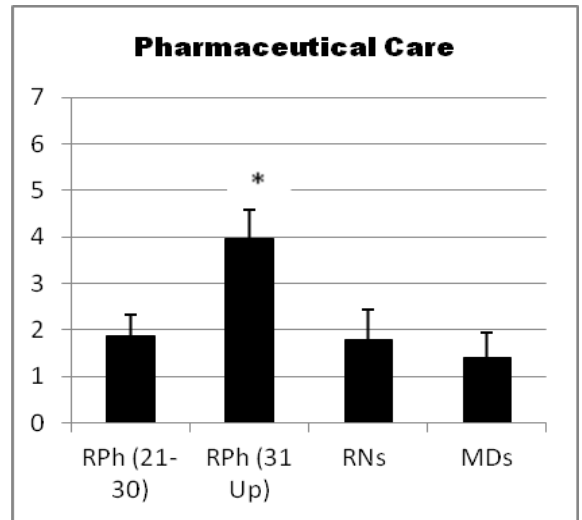
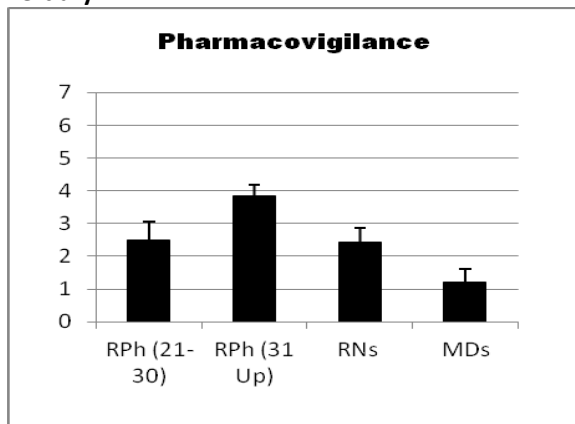
Replicate measurements were measured as mean ± standard error of the mean, such that for each discipline, the average scores of all the sections were pooled as one. Means were compared by the 2-tailed student t-test and 2-way analysis of variance which was validated by the Scheffe’s test. Correlation statistics based on ranking and linear regression on the preference for the 3 disciplines was also included (4).

Results

Demographics

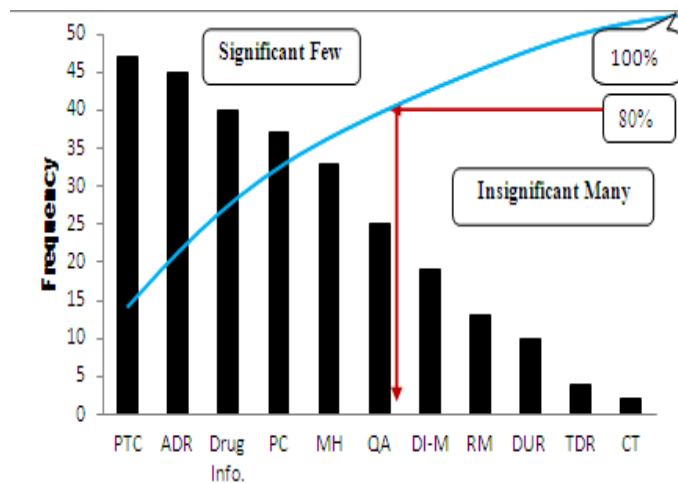
A total of 3 hospitals in La Union (2 private and 1 government hospitals) and 6 hospitals in Pangasinan (5 private and 1 semi-private) were covered by the first set of questionnaires, interviews and observations. The hospitals covered in Pangasinan are all based in Dagupan City. There were 49 respondents which are distributed according to the following criteria: (a) 19 males and 30 females; (b) 18 respondents belong to the 20 – 30 age group and 21 are aged 31 and above; (c) 21 are staff pharmacists, 18 are nurses-on-duty and 10 are physicians-on-duty, either as consultants or residents. A total of 12 personnel (i.e., 5 professional medical representatives, 2 drug salesmen, 2 nurses, 2 medical secretaries and 1 medical consultant) distributed the first questionnaires.

Figure 1: Mean Likert Score of the Inclusion of Pharmacovigilance and Pharmaceutical Care in the Scope of Job Descriptions among Allied Health Care Professionals in Tertiary



Likert scale from 1 (very most unlikely in scope) to 7 (most likely with a very broad scope); n = 49; *p < 0.01 versus nurses (RNs), physicians (MDs) and pharmacists (RPh) aged 21-30

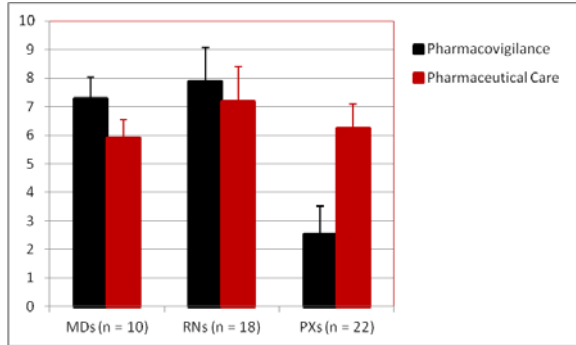
Figure 2: Pareto Chart of the Different Aspects of Pharmacovigilance and Pharmaceutical Care Surveyed Among Pharmacists, Nurses and Physicians (n = 49)



PTC = pharmacy & therapeutics committee; ADR = adverse drug reactions monitoring; PC = patient counselling; MH = medication history review; QA = quality assurance in dispensing; DI-M = drug interaction monitoring; RM = risk management; DUR = drug utilization review; CT = clinical trial participation



Figure 3: Pooled Likert Scale on the Perception of Allied Health Professionals on Pharmacists on their Delivery of Pharmacovigilance Services and Pharmaceutical Care in Tertiary Hospitals in La Union and Pangasinan



The second set of questionnaires covered a control population of 31 respondents consisting of 11 physicians-on-duty, either as consultants or residents, 11 nurses-on-duty and 9 out-patients and was distributed by the same personnel who distributed the first set of questionnaires.

Table 1: Mean Likert Score of the Different Aspects of Pharmacovigilance and Pharmaceutical Care as to Their Scope within the Practice of Pharmacists, Physicians and Nurses in Tertiary

Major Disciplines & Areas	Pharmacists Aged 21 – 30	Pharmacists Aged 31 & Above	Physicians	Nurses
Pharmacovigilance:				
ADR Monitoring	2.94 ± 0.44	*4.12 ± 0.52	1.77 ± 0.24	2.56 ± 0.62
DI Monitoring	1.87 ± 0.26	*3.51 ± 0.72	1.44 ± 0.31	2.85 ± 0.54
Risk Assessment	1.96 ± 0.44	2.31 ± 0.39	^Δ 4.56 ± 0.81	2.04 ± 0.36
MH Review	2.38 ± 0.52	1.97 ± 0.18	2.41 ± 0.66	1.85 ± 0.74
DUR	1.89 ± 0.35	3.72 ± 0.47	1.52 ± 0.38	1.42 ± 0.27
QA	*5.66 ± 0.75	*6.13 ± 0.63	1.14 ± 0.07	1.08 ± 0.11
TDM	1.82 ± 0.75	1.72 ± 0.39	^Δ 3.18 ± 0.49	1.18 ± 0.16
Pharmaceutical Care:				
Patient Counselling	2.98 ± 0.83	3.67 ± 0.65	1.46 ± 0.25	1.39 ± 0.21
Drug Information	2.18 ± 0.44	*4.27 ± 1.04	1.92 ± 0.47	1.88 ± 0.56
Education	1.46 ± 0.21	*3.18 ± 0.29	2.17 ± 0.55	1.24 ± 0.16

Hospitals in La Union and Pangasinan (n = 49)

ADR = adverse drug reaction; DI = drug interaction; MH = medication history; DUR = drug utilization review; QA = quality assurance; TDM = therapeutic drug monitoring; Likert scale: 1 = not a priority at all to 7 = very high priority; *p < 0.05 versus RPh 21-30, MDs and RNs; ^Δp < 0.05 versus RPh and RNs

The places where both quantitative and qualitative assessments were performed are distributed as follows: central pharmacies, ~31%; satellite pharmacies, ~ 3%; out-patient departments; ~25%; emergency and admitting sections, 21%; and in-patient wards, ~ 20%.

Scope of the Practice of Pharmacovigilance and Pharmaceutical Care

Figure 1 compares the pooled priority mean score of the 4 groups of respondents on incorporating pharmacovigilance and pharmaceutical care in their respective practices. There was comparative score in both disciplines among pharmacists aged 21-30, nurses and physicians (p > 0.05); on the other

hand, priority among pharmacists aged 31 and above is significantly greater, although improvements still need to be seen as most scores lie along the 3.5 midpoint.

The Pareto chart in Figure 2 provides significant findings on pharmacy therapeutics committee (PTC), adverse drug reaction monitoring (ADR), drug information, patient counselling (PC), medication history review and quality assurance in dispensing (QA) as the areas where the total population of respondents gives due importance in their line of work.

The superiority of PTC and ADR over the other job aspects was expected as all 3 groups of health professionals surveyed participate in these areas in all the hospitals covered, which is also the case with most tertiary hospitals in the Philippines. Among the significant few factors, ADR monitoring, MH review and QA upon dispensing contribute to pharmacovigilance implementation while drug information dissemination and patient counselling forms the core aspects of pharmaceutical care. Although drug utilization review (DUR) was found to be insignificant, it is possible that an overlap can

happen with MH review. Among the pharmacovigilance factors that needed improvement include drug interaction monitoring (DI-M), risk management, therapeutic drug monitoring (TDR) and participation in clinical trials (TC).

Table 1 compares the prioritization of pharmacists, physicians and nurses on the different aspects of pharmacovigilance and pharmaceutical care in 9 tertiary hospitals. The results showed that older pharmacists give significantly higher focus on ADR and DI monitoring, QA during dispensing, drug information and dissemination than younger pharmacists, nurses and physicians. On the other hand, QA is the only area where younger pharmacists are active at, compared with their other job descriptions. The physicians were found to be



more interested in the areas of risk assessment and therapeutic drug monitoring.

Figure 3 compares the assessment of physicians, nurses and selected out-patients on their perception of the roles of pharmacist in rendering services in pharmacovigilance and pharmaceutical care by pooling together the mean scores of the areas of responsibilities under each of the 2 disciplines. The results showed that both groups of physicians and nurses have high regards for pharmacists in all the undertakings of pharmacovigilance and pharmaceutical care, with scores ranging from 6 to 7 out of the 10-point Likert scale. However, out-patients seem to favor pharmacists in delivering pharmaceutical care but not in the discipline of pharmacovigilance. In this case, the low score for pharmacovigilance may be influenced by the lack of knowledge or information on the part of out-patients regarding adverse drug reactions, drug interactions and medication errors and how health professionals carry out these tasks. Out-patients, however, felt the pharmaceutical care services rendered by hospital pharmacists, particularly in the aspects of patient consultation (i.e., particularly on adverse drug reactions and food and drug interactions, allergies and dosing), education and drug information.

Discussion and Conclusion

This study revealed that older hospital pharmacists (aged 31 and above) are more engaged in the disciplines of pharmacovigilance and pharmaceutical care than their younger counterparts, nurses and physicians in selected tertiary hospitals in the provinces of Pangasinan and La Union. The areas of greater significance include ADR monitoring, drug information dissemination, patient consultation, MH review and QA upon drug dispensing and education in all the total population of respondents and pharmacists alone. Both groups of nurses and physicians are significantly satisfied with hospital pharmacists in delivering pharmacovigilance services (i.e., ADR and DI monitoring, DUR, MH review) and pharmaceutical care while out-patients are satisfied only with these pharmacists in rendering pharmaceutical care services.

The significance of including physicians and nurses in these comparisons is that they serve as control owing to the fact that both pharmacovigilance and pharmaceutical care are not included in their core or central duties, but they do so when occasion permits in the absence of pharmacists (5). This is also partly due to their role as baseline control population, since overlap in job descriptions always happen among pharmacists, physicians and nurses, particularly in tertiary institutional care setting (6). The reasons for these differences observed between older pharmacists and their younger counterparts, nurses and physicians can be attributed to experience and exposure of older pharmacists in monitoring adverse drug reactions and drug interactions which were obtained either through continuing education, literatures from drug detailmen and internet and peer reviews, among others (7).

An interview with a sample of the total population of pharmacists covered in the survey stressed the importance of QA during dispensing as medication error may happen at any time. These pharmacists stated that medication error may be caused by switched medicines delivered to the wrong patients or ward, wrong dose and wrong dosage forms, such as in the case of sustained release capsules or tablets. This is particularly true when unit dose dispensing is still the main drug delivery system being implemented (8).

According to older pharmacists, monitoring of ADRs and DIs has never become so imperative since it is not all the time that physicians and nurses can carry out these tasks. The barriers to these monitoring activities, however, have been identified, thus: lack of information and computerization on medication history and staff pharmacists-on-duty, increasing conflicts with scheduled dispensing duties, compensation restraint, dearth of staff pharmacists-on-duty.

The significantly higher scores for therapeutic drug monitoring (TDM) and risks assessment among the group of physicians can be attributed to the fact that physicians are the front-liner in these areas, particularly during emergency situations (9). In an interview, these physicians stated that TDM is used as a tool among in-patients prescribed with clozapine, warfarin, lithium and digoxin which are drugs with very narrow therapeutic indices (10). TDM with warfarin and digoxin, however, pose a problem as there are no facilities to do these procedures such that patients need to be referred to tertiary hospitals in Metro Manila for these purposes.

In an interview with younger pharmacists and nurses, the lower scores they obtained with the different areas of pharmaceutical care and pharmacovigilance are attributed to, thus: lack of formal training, motivation, staff pharmacist and compensation. It has been observed in all the hospitals surveyed that they hired a maximum of only 3-4 pharmacists rotating on an 8-hour shift. Physical observations show that some of these hospital pharmacies do not have additional personnel or technicians to assist the pharmacists-on-duty whose tasks are, therefore, limited to dispensing.

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AUTHORS' CONTRIBUTIONS

Authors contributed equally to all aspects of the study.

PEER REVIEW

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CONFLICTS OF INTEREST

The authors declare that they have no competing interests.