A SURVEY OF PHARMACISTS' KNOWLEDGE AND PRACTICE OF PHARMACOLOGICAL CARE IN INDIA

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ABSTRACT In order to improve the patient's quality of life and assure the safety of pharmacotherapy, pharmaceutical care (PC) is an important part of healthcare. As a part of the multidisciplinary team caring for patients, a pharmacist should be included and pharmaceutical services should be integrated with medical care and nursing. This is a major problem for the Polish health care system.To assess the attitudes and knowledge of pharmacists in India towards the practise of PC and to identify the hurdles to the supply of PC.Methods: Polish pharmacists were recruited to participate in a multicentre trial. Using a random sample method, the study group was chosen at random. After gaining the pharmacists' verbal agreement to participate in the study, a face-to-face questionnaire approach was utilised to interview them. Research took place between January 2017 and September 2019, according to the results.As a result, just 15% of pharmacists have ever taken a PC training course. Pharmacotherapy safety was deemed essential by 72% of respondents. Only 63% of pharmacists feel that they are responsible for preventing and resolving health-related and drug-related issues for their patients. The lack of time, lack of legal rules, and lack of organisational facilities were the primary reasons for pharmacists not providing PC.As a result of this investigation, it can be concluded that India will soon deploy personal computers. There is an urgent demand for educational programmes in this area. Pharmacists should be required to have access to personal computers in their classrooms.

Keywords: pharmaceutical care, practise, pharmacists

I. Introduction

Pharmacy practise has been influenced by the pharmaceutical care (PC) idea. Individuals in many nations may get health counselling and drug management help at their local pharmacy. Pharmacists are often the initial point of contact for patients who are unable to see a doctor right away. Indian medical consultations are becoming shorter and shorter, and patients are routinely examined simply to be prescribed medication or given deceptive information. An accessible PC appears to be essential in this scenario. It wasn't until Hepler and Strand released their useful definition of PC in 1990 that PC became widely accepted. PC's primary objective is to enhance the well-being of its patients (QOL) (Begum, & Teegala, 2018). Physicians and pharmacists may work together to ensure that patients receive the best possible pharmacotherapy and prevent difficulties with polypharmacy. PC also offers the prospect of cost savings due to drug reimbursements in pharmacies. Pharmaceutical care was initially specified in the Pharmaceutical Chambers Act, modified in 2008 in the amended Pharmaceutical Chambers Act in India. While there existed a well-defined concept of PC, the legislators failed to implement precise bylaws in the pharmaceutical law system that would have allowed PC to become a reality in the operation of pharmacies.

II. Background

Pharmaceutical care is the pharmacist's role in enhancing pharmacotherapy through a wide range of pharmaceutical services in the scientific setting. In addition, these services are focused on optimising pharmacotherapy and identifying adverse drug responses or interactions. It's also becoming more common for pharmacies to provide preventative healthcare and educate patients on how to utilise their medications properly,

as well as to educate them on the condition and its effect on the patient's life (Voora, *et al.* 2020). There are a variety of services/pharmaceutical treatments that are used to execute pharmaceutical care as a comprehensive approach in practise.

As important as PC is in optimising and protecting patients' health, there are currently few studies on pharmaceutical care in India. Complex pharmaceutical treatment regimens given by several physicians of different specialties, on the other hand, are typically followed by patients because of relentless promotion (Nair, *et al.* 2019). Pharmaceutical treatment in India's healthcare system has several issues, including how to include pharmacists in multidisciplinary teams that care for patients. The subject of PC in India is still up for debate, but there are certain issues that need to be clarified, such as the attitude toward the restriction on advertising services supplied at pharmacies.

Predominantly, both public and hospital pharmacies are responsible for dispensing drugs and ensuring their quality. The goal of the study was to examine how Indian pharmacists handle pharmaceutical care (Bepari, *et al.* 2019). The research topic was, "Do Indian pharmacists have the requisite knowledge and attitude to deliver pharmacological care?" The study's goal was to examine the attitudes and practises of Indian pharmacists regarding the idea of pharmaceutical care, as well as the hurdles to its implementation in India.

III. Methods

Indian pharmacists in community pharmacies were surveyed in a multicentre, face-to-face questionnaire research. A direct interview was conducted in which the surveyor would read the question aloud to the pharmacist and mark it in the survey, or the pharmacist would input the responses into a form that was filled out by the surveyor and the surveyor was there to clarify any ambiguities (Meghana, *et al.* 2021). The research participants were chosen using a cluster random selection approach. The research was conducted in three provinces with the largest concentration of practising pharmacists. Two cities in each province with the most pharmacies listed in the official database maintained by the Chief Pharmaceutical Inspectorate were chosen. Prior to beginning the data gathering procedure, the interviewers were properly trained (Voora, *et al.* 2020). Every pharmacist was given a thorough explanation of the study's goals by each interviewer. Research took place between January 2017 and September 2019, according to the results.

There were eleven questions in all (Tables 2 and 3). Based on professional references, the questions in the questionnaire were submitted to social pharmacy professionals for their evaluation. The questionnaire was pre-tested on a sample of 150 pharmacists, who had been informed of the study's goal, to ensure its correctness and comprehensibility.

What happened after that was that some of the questions had to be changed. As a result of the pre-failure test's to provide any significant alterations to the instrument, the results were included in the final research (Begum, & Teegala, 2018). During the first section of the questionnaire, pharmacists were asked about their views on the safety of pharmacotherapy offered by the healthcare facility (Q1). In addition, they discussed the concept of PC (Q2) and the need of attending training/courses in the field of PC providing (Q3). Pharmacists' attitudes and knowledge in the realm of PC supply were also tested in the questionnaire (Q4-Q10). During the course of the survey, pharmacists were given the opportunity to voice their thoughts on potential barriers to pharmacy consultation services (PCs) (Q11- Q15).

Resolution number 1056/15 from the Bioethics Committee at Poznan University of Medical Sciences authorised the study. STATISTICA PL 10.0 was used for the statistical analysis (StatSOFT).

Numbers and percentages were used to convey the information. The chi-square test of independence was used to assess the minimal data (Voora, *et al.* 2020). All tests were judged significant at p 0.05. The Test of Proportions was used to identify statistically significant variations in the percentage of group findings (post-hoc test).

IV. Results

Study population

Of the 899 pharmacists who received questionnaires, only 400 showed verbal interest in participating in the study. Respondents made up 44.49 percent of those surveyed. According to the pharmacists' demographics, they were an average of 38.05 years old (Meghana, *et al.* 2021). The average number of years that pharmacists had worked in a pharmacy was 9.13 years. The vast majority of pharmacists (72.25 percent) have a Master's degree in pharmacy (Table 1).

Table 1 Demographic characteristics of pharmacists included in the study evaluating their knowledge, attitude, and practice in terms of pharmaceutical care in Poland (n=400)

Characteristic	
Age [years; mean (SD)]	38.05 (7.76)
Sex [female; N (%)]	165 (41,25)
Years of practice [years; mean (SD)]	9.13 (8.02)
Education level; N (%)	
Masters of Pharmacy	289 (72,25)
Doctors of Pharmacy	111 (27,75)'

Knowledge

The term "pharmaceutical care" (PC) was understood by the majority of pharmacists (76 percent) (Table 2). Younger and more educated pharmacists exhibited more familiarity with the PC definition, which was shown to be significantly linked with both age (p0.05) and education level (p0.05) (Table 2) (Bepari, *et al.* 2019). People with more expertise and older age were more familiar with the PC's idea and basic assumptions (Table 2).

Less than a fifth of the pharmacists (N=60) had ever attended a PC training course; this was connected with age (p0.05) and professional experience (p0.05) (Table 2).

Table 2 Assessment of pharmacists' knowledge, attitude and practice towards pharmaceutical care (PC) concept and policy (n=400)

Questions	Response N (%)	Age (%)				Education level (%)		Years of practice (%)		
		< 30	31-40	41-50	>50	Masters of Pharmacy	Doctors of Pharmacy	<10	11-20	>20
Knowledge										
What is the definition of PC? Correct Answer	304 (76%)	47	26	14	13*	39	61	25**	32	43
		p < 0.05				p < 0.05		p < 0.05		
Have you ever had a course/attended a workshop on PC? Answer: Yes	60 (15%)	82^	18	0	0	55	45	69	23	8[a]
		p < 0.05				NS		p < 0.05		
Attitudes										
Do you believe that the healthcare system guarantees pharmacotherapy safety? Answer: Yes	172 (43%)	15	12[b]	35	38	36	64	30	21[c]	49
		P < 0.05				p < 0.05		p < 0.05		
Do you believe that the primary aim of pharmaceutical care is to improve and maintain the patient's quality of life? Answer: Yes	172 (43%)	12[d]	29	37	22	45	55	15[e]	44	41
		p < 0.05				NS		p < 0.05		
Do you believe PC provision is necessary to ensure Pharmacotherapy safety? Answer: Yes	328 (82%)	33	54	10[f]	3[g]	46	54	61	32[h]	7[i]
		p < 0.05				p < 0.05		p < 0.05		
Are you willing to provide pharmaceutical counselling? Answer: Yes	180 (45%)	49	26	18	7[j]	43	57	23[k]	47	30
		p < 0.05				p < 0.05		p < 0.05		
Do you believe preventing and solving health-related and drug therapy problems to be your responsibilities? Answer: Yes	272 (68%)	33	40	14	13[l]	53	47	35	38	27[m]
		p < 0.05				NS		p < 0.05		
Do you believe that the future success of the pharmacy will depend on provision of professional services in addition to dispensing? Answer: Yes	300 (75%)	35	39	20	6[n]	69	31	41	47	12***
		P < 0.05				p < 0.05		p < 0.05		
Practice										
Do your patients frequently ask you for advice on pharmacotherapy? Answer: Yes	276 (69%)	27	37	23	13^^	45	55	40	47	13^^^
		p < 0.05				P < 0.05		p < 0.05		
Do you contact a physician if you suspect a drug interaction? Answer: Yes	128 (32%)	34	66	0[#]	0[&]	62	38	43	57	0[z]
		p < 0.05				P < 0.05		p < 0.05		

Attitudes and practice

Pharmacists were confident that the healthcare system ensured the safety of pharmacotherapy for 43 percent of respondents (Table 2). To put it another way, pharmacists' age (older) was connected with their degree of education (p0.05) and work experience (p0.05), which meant that older pharmacists with less education and more work experience were more confident in the system's safety.

In order to maintain the safety of pharmacotherapy, the majority of pharmacists (82 percent) agreed that providing a PC was essential. In other words, pharmacists who were younger, more educated, and had been in practise for a shorter period of time were more likely to believe that PC supply was essential (p0.05) (Table 2) (Vigneshwaran, *et al.* 2020). Only 45% of those polled were prepared to offer pharmacological advice, and those who were younger and more educated were more inclined to do so. Many of the pharmacists who participated in this study thought their job was to prevent and resolve health and drug therapy issues, but only 68 percent of them agreed that their success as a pharmacy would depend on providing professional services in addition to dispensing (Nair, *et al.* 2019). Age and length of pharmacy practise were shown to be associated with this view (p0.05), indicating that younger pharmacists with shorter pharmacy practise were more open to the difficulties raised. 69 percent of pharmacists who said that their patients regularly requested for assistance on their pharmacotherapy cited a need for pharmacological counselling services (Table 2). Three out of four (32%) pharmacy workers said they consulted their doctor when there was an issue with medication interactions (Table 2).

Barriers

A lack of time (87 percent), a lack of legal rules (87 percent), a lack of organisational facilities (87 percent), a lack of PC expertise (79 percent), and a lack of necessity for PC service (37 percent) were the most common reasons for pharmacists not providing PC (Table 3) (Seid, *et al.* 2018). There was a significant (p 0.05) correlation between these findings and sociodemographic data (Table 3).

Table 3 Factors which may discourage pharmacists from delivering pharmaceutical care (n= 400)

Questions	Response N (%)	Age (%)				Education level (%)		Years of practice (%)		
		< 30	31-40	41-50	>50	Masters of Pharmacy	Doctors of Pharmacy	<10	11-20	>20
Lack of time to delivering PC	348 (87%)	26	39	26	9*	58	42	33	35	32
		p<0.05				p<0.05		NS		
Lack of legal regulations	348 (87%)	23	37	28	12	56	44	33	35	32
		NS				p<0.05		NS		
Lack of organizational facilities (e.g. a dedicated room) For PC provision	348 (87%)	23	31	26	20	43	57	40**	28	32
		NS				p<0.05		p<0.05		
Level of knowledge makes it difficult to delivering PC	316 (79%)	50	17	5^	32	41	49	53	15^^	32
		p<0.05				p<0.05		p<0.05		
Don't feel the need to delivering PC	148 (37%)	40	32	23	5#	47	53	20	23	57&
		p<0.05				NS		p<0.05		

V. Discussion

According to the findings of this survey, the majority of pharmacists in India believe that PC is necessary and that the legal and organisational aspects of PC should be regulated (Nisa, *et al.* 2020). Other researchers and the National Section of Pharmaceutical Care of the Indian Pharmacists Society have earlier acknowledged the necessity for PC implementation in India and provided their own concept of state-of-the-art pharmaceutical care development in India in 2016.

Despite the lack of any legislative requirements for PC practise in India, our research has found that pharmacists are enthusiastic about the PC idea (Seam, *et al.* 2018). As in Thailand and New Zealand, these mindsets are not uncommon elsewhere. Many pharmacists are familiar with the term "PC," but only 43 percent grasp the idea; and 78 percent feel that pharmacy's future success hinges on providing professional services in addition to delivering drugs. Over 60% of the pharmacists who were surveyed in New Zealand correctly understood PC, according to similar findings. Almost the same number of people in that research said that the future of pharmacy will be dependent on providing services other than distributing drugs.

The results of this study also show that pharmacists with more work experience understand PC concept statements better than their less experienced counterparts. The results from Saudi Arabia and Nigeria were comparable to this (Shanko, & Abdela, 2018). Researchers in Qatar, as well as those in our study, have shown that pharmacists with greater expertise are less enthusiastic about the PC idea. If pharmacists with greater experience are reluctant to deliver PC because of the inherent barriers that may impede PC deployment, this might explain the study's findings. More open to the challenges of launching a new service are these pharmacists.

VI. Limitations

The sample size was limited (n=522), making it difficult to extrapolate the results to a larger population. In addition, the pharmacists' replies may have been skewed. The investigation was additionally hampered by the

possibility of recall bias because of the various professional experiences, seniority, and ages of pharmacists in the sample group (Vigneshwaran, *et al.* 2020). Another disadvantage of this study is the fact that the questionnaire lacks validity and reliability measurements.

VII. Conclusion

This survey shows that the community of pharmacists in India expects official introduction of PC. Indian pharmacists, on the other hand, appear to have little understanding of the PC concept, according to the findings of this study. The demand for educational programmes in this area is critical. Pharmacists should be required to have access to personal computers in their classrooms. Another major obstacle is the lack of legislative regulations and, consequently, the lack of pay and organisational circumstances for PC provision in the daily job of pharmacists.

References

Begum, A., & Teegala, M. (2018). A survey based study for the assessment of knowledge and practice of community pharmacy personnel on good pharmacy practice in Hyderabad, India. *Indian Journal of Pharmacy Practice*, *11*(1). https://ijopp.org/sites/default/files/ijopp-11-14.pdf

Bepari, A., Niazi, S. K., Rahman, I., & Dervesh, A. M. (2019). The comparative evaluation of knowledge, attitude, and practice of different health-care professionals about the pharmacovigilance system of India. *Journal of Advanced Pharmaceutical Technology & Research*, *10*(2), 68. https://www.ncbi.nlm.nih.gov/pmc/articles/pmc6474162/

Meghana, A., Aparna, Y., Chandra, S. M., & Sanjeev, S. (2021). Emergency preparedness and response (EP&R) by pharmacy professionals in India: Lessons from the COVID-19 pandemic and the way forward. *Research in Social and Administrative Pharmacy*, *17*(1), 2018-2022. https://www.sciencedirect.com/science/article/pii/S155174112030437X

Nair, M., Tripathi, S., Mazumdar, S., Mahajan, R., Harshana, A., Pereira, A., ... & Burza, S. (2019). Knowledge, attitudes, and practices related to antibiotic use in Paschim Bardhaman District: a survey of healthcare providers in West Bengal, India. *PLoS One*, *14*(5), e0217818. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0217818

Nisa, Z. U., Zafar, A., Zafar, F., Pezaro, S., & Sher, F. (2020). Adverse drug reaction monitoring and reporting among physicians and pharmacists in Pakistan: a cross-sectional study. *Current Drug Safety*, *15*(2), 137-146. https://www.ingentaconnect.com/content/ben/cds/2020/00000015/00000002/art00009

Seam, M., Reza, O., Bhatta, R., Saha, B. L., Das, A., Hossain, M., ... & Sattar, M. M. (2018). Assessing the perceptions and practice of self-medication among Bangladeshi undergraduate pharmacy students. *Pharmacy*, *6*(1), 6. https://www.mdpi.com/254152

Seid, M. A., Kasahun, A. E., Mante, B. M., & Gebremariam, S. N. (2018). Healthcare professionals' knowledge, attitude and practice towards adverse drug reaction (ADR) reporting at the health center level in Ethiopia. *International journal of clinical pharmacy*, *40*(4), 895-902. https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/article/10.1007/s11096-018-0682-0&casa_token=GtX4HC8GWRgAAAAA:cfAlmptPfxFv5lSCrQVj3DPDRXFC552md-FFOEllfYI1fP5KSgsDtmcJaC0v0hkw-lcrEN8VLG-1yDi05wA

Shanko, H., & Abdela, J. (2018). Knowledge, attitudes, and practices of health care professionals toward adverse drug reaction reporting in Hiwot Fana Specialized University Hospital, Harar, Eastern Ethiopia: a cross-sectional study. *Hospital Pharmacy*, *53*(3), 177-187. https://journals.sagepub.com/doi/abs/10.1177/0018578717737430

Vigneshwaran, E., Harichandana, V., Sadiq, M. M. J., Alavudeen, S. S., Khan, N. A., & Ahmed, T. (2020). Knowledge, attitude and practice of community pharmacists towards adverse drug reactions reporting. *Journal of Young Pharmacists*, *12*(1), 75. https://www.jyoungpharm.org/article/1424

Voora, L., Sah, S. K., Bhandari, R., Shastry, C. S., Chand, S., Rawal, K. B., ... & Vinay, B. C. (2020). Doctor of pharmacy: boon for healthcare system. *Drug invention today*, *14*(1), 153-158. http://klepharm.edu/media/uploads/publications/final-file-5e70cd4016a220.08911046.pdf