

Indian Pharmacists Contemplation on Board of Pharmacy Specialties Certification: A Multi-Centric Survey

Mohammed Salim Karattuthodi^{1,2}, Shabeer Ali Thorakkattil³, Shamna Machanchery⁴, Sainul Abideen Parakkal³, Rajiah Thangaraj Saravanakumar⁵, Saad Saeed Alqahtani⁶, Dilip Chandrasekhar¹

¹Department of Pharmacy Practice, Al Shifa College of Pharmacy, Kerala University of Health Sciences, Thrissur, Kerala, INDIA.

²Department of Pharmacy Practice, Manipal College of Pharmaceutical Sciences, Manipal Academy of Higher Education, Manipal, Karnataka, INDIA.

³Pharmacy Services Department, Johns Hopkins Aramco Healthcare (JHAH), Dhahran, SAUDI ARABIA.

⁴Department of Clinical Pharmacy, Jazan University, SAUDI ARABIA.

⁵Department of Pharmacy, Annamalai University, Chidambaram, Tamil Nadu, INDIA.

⁶Department of Clinical Pharmacy, Pharmacy Practice Research Unit, College of Pharmacy, Jazan University, Jazan, SAUDI ARABIA.

ABSTRACT

Background: The Board of Pharmacy Specialties (BPS) ensures the pharmacist to be a skilled and trained healthcare professional that serves the advanced medical requirements. Our study identified the awareness and attitude of Indian pharmacist towards BPS board certification and explored their constraints and motivational elements in pursuing the credential. **Materials and Methods:** The cross-sectional observational study was performed with Indian pharmacists working in their homeland and those who migrated to Gulf countries. The validated and statistically tested questionnaire was circulated through WhatsApp Messenger®; 30.86% had responded and participated in the survey. **Results:** We met with equal samples of Indian pharmacists ($n = 108$) in both groups, i.e. those residing in India and those in Gulf Cooperation Council (GCC) countries. The majority of the responses were from hospital and community pharmacists working in GCC countries and Indian clinical pharmacists. It was observed that those who heard about BPS from their work settings, during internship and final academic year had appreciable knowledge on the certification program. Career advancement was the major motivational factor that tempted the Gulf pharmacists to pursue the credential. The awareness of Indian pharmacists in the two groups were computed with the Mann Whitney test and did not show any differences (p value >0.05). However, the pharmacist's attitude in India, UAE, Bahrain and Oman were better than those in Saudi Arabia and Qatar ($p < 0.05$). Natives' disinclination was stimulated by the lack of professional merits upon gaining the board certifications in the country. **Conclusion:** Indian pharmacist's knowledge and attitude towards BPS board certifications need to be enhanced. The pharmacy authorities can initiate awareness and motivation programs for facilitating many to take up such credentials.

Keywords: Attitude, Awareness, Barriers, BPS, Certification, Pharmacist.

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Correspondence:

Dr. KT Mohammed Salim

Assistant Professor and
Clinical Preceptor,
Department of Pharmacy
Practice, Al Shifa College of
Pharmacy, Kerala University
of Health Sciences, 679325,
Kerala, INDIA.

E-mail: ktsaleem8@gmail.
com

INTRODUCTION

Medication-related problems significantly and adversely affect patient safety and care, their quality of life, and affordability.¹ The pharmacist, a key participant on the healthcare team, is committed to provide optimal medication therapy services to patients in collaboration with physicians and

nurses. These patient-centred services aim to identify and resolve potential and avoidable drug-related problems and promote safe and effective administration for gratifying outcomes.² The pharmacy practice can cater to society in various dimensions wherein standard certificate or



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certification programs would add value in delivering the evidence-based pharmacotherapy rather than simply dispensing medicine.³ Acquisition of specialized skills would be an asset while reviewing polypharmacy. Upon completion of legal agent's requisite criteria, an individual, would then be labelled as a certified pharmacist.⁴ Numerous worthwhile add-on courses that are accessible for international pharmacists can be found, of which Board of Pharmacy Specialties (BPS) certification programs is one of the best.⁵

Upon completion of legal agent's requisite criteria, an individual, would then be labelled as a certified pharmacist.⁴ Numerous worthwhile add-on courses that are accessible for international pharmacists can be found, of which Board of Pharmacy Specialties (BPS) certification programs is one of the best.⁵

In the second half of the 20th century, BPS was established and became a promising credential program. A BPS board-certified pharmacist would undoubtedly have attained the efficacy to contribute much more to patient outcomes and specialized care.⁶ Today's expectations of patients, physicians, employers and others are high enough to be met through uncompromising standards, are reflected by the certified pharmacist who is recognized as a participant on the healthcare team.⁷ Fourteen distinct specialties are recognized by BPS and include ambulatory care, pharmacotherapy cardiology, compounded sterile preparations, psychiatric pharmacy, geriatrics, pediatrics, infectious diseases, critical care, nuclear pharmacy, nutrition support, oncology, and solid organ transplantation.⁸ Through rigorous standards, such as validating an individual's education, post-licensure practice experience, and recertification, the board certification is considered one among the most qualified additional programme.⁹

Awareness of the BPS credential program is likely to be linked to the number of certified pharmacists in specific regions. The United States (US) (89.06%), Egypt (2.54%), and Canada (2.49%) are in the top list, while India is considered low.¹⁰ Insufficient training, under – recognition, and poor job satisfaction warrant a positive transformation in advanced clinical pharmacy services in India.¹¹ Pharmacists from developing countries must appraise certification programs and their decision will certainly influence the people they serve.¹² BPS considers the essentiality of more than 30,000 certified pharmacists who are yet to be distributed worldwide, and all pharmacy practitioners should be board certified.¹³

The six-year integrated pharmacy practice course was launched to expose the international image and role of clinical pharmacists among the healthcare team.

Each year, 30 candidates qualify for the Doctor of Pharmacy (PharmD) program in India, a number that is much less than those obtaining a bachelor in pharmacy (50-100 seats) and more when considering its master's degree (10-20 seats).¹⁴ The PGY1 and PGY2 residency programs are insubstantial in the country, more limited than in Gulf countries and much more so than in the US.¹⁵ Restricted access for the graduates to pursue and become a specialist has clogged the pace of Indian pharmacy employment. However, BPS offers examination centers in many countries, even in India, and experienced pharmacists can take advantage of this facility.

The community pharmacist visible to much larger people can contribute more to public health. Winning certification and being board certified ambulatory care pharmacist (BCACP) would be a strong point for them, which in turn can elevate their recognition. However, only a few pharmacists with such credential in the Middle East can be found, and none are in India.¹⁶ The pharmacists should strive to prove the real value that necessitates them to be vital on the healthcare team, which would prompt the field to improve and flourish during the current situation. Specialization can facilitate the establishment of guides with adroitness in appropriate drug selection and impart optimal care to patients in tough times, especially during the pandemic, which requires trained and skilled professionals.¹⁷ Moreover, Indian pharmacists are always keen to find better jobs and placements abroad that call for a high knowledge base and competence level in providing pharmaceutical care. In the current scenario, we hypothesize that very few of them would be aware of the BPS certification, and their attitude toward it may vary in different work settings. However, we managed to nullify sampling bias by randomly selecting the participants and picturing the actual findings. A survey confined to the BPS certification program can be an opener for many Indians; no similar studies have been carried out in this population to date. Our study was performed to assess the level of awareness and attitude toward BPS board certification and investigate any relationship between demographic characteristics and their knowledge and attitude. Additionally, we aimed to assess various barriers and motivation factors among the samples.

MATERIALS AND METHODS

The cross-sectional observational study yielded a total sample of 216 pharmacists; 108 each from the Indian pharmacy professionals working within their country and the Middle East. Academicians, community, clinical

and hospital pharmacists were our target population. Considering the widespread usage of WhatsApp® messenger among Indians, and its large-scale messaging utility, promoted us to opt for the online social media service. In this context, we circulated the online BPS survey questionnaire through pharmacy associations, working pharmacists' and colleges/ universities' groups. Authors acted as the circulators, and the number of responders and non-responders to the electronic form was counted. Overall, questionnaire had reached 350 samples working in India and Middle East countries, including Saudi Arabia, Bahrain, United Arab Emirates, Oman, Kuwait, and Qatar. The opinion poll on BPS program had a response rate of 30.86%. The informed consent form was enclosed within the questionnaire and follow-up reminders were sent through WhatsApp® at regular intervals to escalate the study population. To compare two sets of population's feedbacks, we had managed to retrieve equal samples (GCC group and Indian Group) within a fixed period, upon consultation with a statistician. The formula calculated the sample size:-

$$N = (Z_{\alpha/2}^2 \times P \times (1 - P) \times D) / E^2$$

Where, $Z_{\alpha/2}$ = Normal deviate for two-tailed hypothesis, D=precision, P= anticipated proportion, E = Margin of error

In two weeks, we had documented and simultaneously grouped all the data.

Questionnaire

The 39-item questionnaire was developed upon a thorough literature review and was appraised by five experienced and BPS board-certified pharmacists working in Gulf countries. Their relevant suggestions were discussed and incorporated into the opinion poll. Moreover, for ease of filling, the English professor modulated the set of questions and was finalized to meet the criteria of a good questionnaire design i.e. valid, succinct, clear, and interesting.¹⁸ Ultimately transcribed into Google form and was circulated. A pilot study of 20 pharmacists from each group was tested for readability, and the test-retest method was used to measure the reliability, face, and content validity.

The questionnaire evaluated the level of awareness and attitude toward BPS and the main motivation factors and perceived barriers in pursuing the certification program. Additionally, basic demographics such as age, gender, employed country, settings and experience, educational qualification, expected future destination, and background questions to know the possession of

certification, was enclosed. The pharmacist's knowledge was assessed with 11 multiple-choice questions. The Cronbach's Alpha analysis (value= 0.78) was performed, and questionnaire's knowledge section showed good internal consistency. The basic information such as examination requirements and eligibility, fees, validity and re-certification, study materials confined to BPS certification were embedded in the section. A point was credited for each correct answer and the cumulative score was computed (score >2[median] indicated appreciable knowledge). The survey's attitude portion comprised of 9 questions (Cronbach's Alpha= 0.87, very good level of reliability) that assessed the preference, considerations, value, future plan of pharmacy professionals concerning to the credential. They were provided with the six-point Likert scale ranging from strongly agree (score 1) to disagree strongly (score 6) and cumulative score of each participant were calculated (score <18 [median] indicated favourable attitude). The motivational factors such as better placement, career advancement, rewards, self-satisfaction, knowledge update, and barriers such as improper guidance, time and financial constraints, lack of interests were identified by 4 questions.

Factor Analysis

The confirmatory factor analysis was performed for the knowledge and attitude portion of the questionnaire and its three factors are represented in Table 1. The loading pattern would determine the factor that has the most influence on each variable. It was identified that factors "Features" and "Requirements" and "Preference" and "Belief" (factor loadings >0.05) were more important/reliable to assess the pharmacy professionals' knowledge and attitude, respectively.

Statistical Analysis

The retrieved data were spread into Microsoft excel and were expressed as percentages; mean and standard deviation calculated for continuous variables. SPSS version 26 was employed for statistical interpretations. The Pearson's Chi-square test estimated the association between demographic variables and knowledge and attitude levels of the Indian pharmacists. Independent *t*-test and Mann Whitney test were performed to compare the pharmacists' attitude and knowledge in Gulf countries with Indians. The p-values less than 0.05 were considered to be statistically significant.

RESULTS

The study enrolled equal samples of Indian pharmacists working in their homeland ($n= 108$) and Gulf countries ($n= 108$). Table 2 shows the baseline characteristic of

Table 1: Confirmatory Factor Analysis of knowledge and attitude of Pharmacist towards BPS.

Knowledge				
Factors	Items	Factor loadings	Ranks	Cronbach's Alpha
Features The cost of writing the BPS exam is 600 \$ The validity of the initial BPS Board certification is seven years	The BPS exam is conducted Twice in a year	0.806	1	0.783
		0.793	2	
		0.777	3	
Requirements The requirement for re-certification is either Pass the Re certification exam or attend 120 hr of continuous education authorized by BPS The passing score for BPS exam is 500 or greater out of 800	Employer verification letter is required to register for the BPS exam	0.687	4	
		0.657	5	
		0.591	6	
Primers There is an annual maintenance fee for BPS broad certification The eligibility criteria to sit for the BPS certification exam is A degree from a pharmacy program accepted by BPS, valid license and experience BPS stands for Board of Pharmacy Specialties Certificate course and certification program are different	The study materials for BPS Board Certification are provided by both ACCP and ASHP	0.478	7	
		0.379	8	
		0.190	9	
		0.084	10	
		0.034	11	
Attitude				
Factors	Items	Factor loadings	Ranks	Cronbach's Alpha
Preference	I will consider BPS Board Certification in my future career plan	0.837	1	0.876
	I prefer to be a BPS certified pharmacist	0.792	2	
Belief	I believe, BPS certification is an accepted certification in the country where I am working	0.740	3	
	I believe that BPS certification is important for pharmacy practice faculty also	0.670	4	
	I think BPS broad certification is the most powerful credential for the pharmacist after regular pharmacy education	0.660	5	
	I believe that BPS certification has value in all areas of pharmacy practice	0.634	6	
Perception	I noticed majority of foreign book authors qualified as BPS board certified professional	0.358	7	
	I believe that only small fraction of pharmacist are BPS board certified world wide	0.243	8	
	I feel that the role of pharmacist in my work place is patient centered	0.003	9	

respondents. In terms of GCC countries' understudies, the most response was obtained from the United Arab Emirates ($n=54$), followed by Saudi Arabia ($n=43$) and the least from Qatar ($n=6$) and Bahrain ($n=3$). The majority were hospital ($n=42$) and community pharmacists ($n=41$) of Gulf countries and Indian clinical pharmacists ($n=44$). The master's degree qualified pharmacist ($n=87$) responded well to our questionnaire than the bachelor ($n=54$) and PharmD graduates ($n=52$). We had obtained high answerers ($n=45$) from Indian colleges or universities. Experienced pharmacists (>10 years) residing in Gulf countries ($n=46$) were

quite interested in filling up the electronic questionnaire than Indian professionals ($n=23$). UAE ($n=49$) was the most preferred destination to work for many, however, a dominant percentage ($n=59$) of pharmacist understudies wish to stay in their country itself (Table 3). The association between pharmacists working in GCC countries and India, with their age, gender, working country, future destination, work settings, highest educational qualification, and the designation was identified by Chi-square test or Likelihood Ratio. It was found to be statistically significant (all the samples were different).

Table 2: Association of demographic of Indian pharmacists working in GCC countries and their native.

Demographics (n = 216)		Group					Likelihood Ratio / Chi square #
		GCC countries understudies		Indian understudies		Total	
		n	%	n	%	n (%)	
Age (years)	20 - 29	15	13.89	61	56.48	66 (30.6)	55.49 *
	30 - 39	88	81.48	36	33.33	124 (57.4)	
	40 - 49	3	2.78	9	8.33	12 (5.6)	
	50 - 59	2	1.85	2	1.85	4 (1.9)	
Gender	Male	89	82.41	53	49.07	142 (65.7)	26.640 #*
	Female	19	17.59	55	50.93	74 (34.3)	
Working Country	Saudi	43	39.81	0	0	43 (19.9)	299.44 *
	India	0	0	108	100	108 (50)	
	United Arab Emirates	54	50	0	0	54 (25)	
	Oman	2	1.85	0	0	2 (0.9)	
	Qatar	6	5.56	0	0	6 (2.8)	
	Bahrain	3	2.78	0	0	3 (1.4)	
Highest educational qualification	Bachelor of Pharmacy	38	35.19	16	14.81	54 (24.8)	43.272 #*
	Master of Pharmacy	54	50.00	33	30.56	87 (39.9)	
	Doctor of Pharmacy	7	6.48	45	41.67	52 (23.9)	
	Doctor of Pharmacy Post Baccalaureate	3	2.78	3	2.78	6 (2.8)	
	PhD	6	5.56	11	10.19	17 (7.8)	
Designation	Academician	11	10.19	45	41.67	56 (25.7)	76.517 #*
	Clinical Pharmacist	14	12.96	44	40.74	58 (26.6)	
	Hospital Pharmacist	42	38.89	11	10.19	53 (24.3)	
	Community Pharmacist	41	37.96	8	7.41	49 (22.5)	
Job Experience	No experience	1	0.93	13	12.04	14 (6.4)	21.236 *
	Less than 10 years	61	56.48	72	66.67	133 (61)	
	10 - 20 years	42	38.89	20	18.52	62 (28.4)	
	21 - 30 years	4	3.70	3	2.78	5 (2.3)	

*P value <0.01

The study had only 7 (6.5%) BPS board-certified pharmacists earned by GCC countries' professionals, a fraction among a huge population. Many Indian pharmacists (n=98) came across the credential during their job practices. Friends (n=64, 30%) and colleagues (n=54, 25%) of the GCC pharmacists shared a good set of information, whereas friends working abroad (n=44, 20%) and official websites (n=35, 16%) were the main sources for native workers. Despite these positive influences, the contributions of teachers (GCC understudies, n=8, 4%; Indian understudies, n=28, 13%) and preceptors (GCC understudies, n=3, 2%; Indian understudies, n=7, 3%) were disappointing.

Knowledge of Indian Pharmacist towards BPS board certification

A low cumulative knowledge score was observed profound among Indian pharmacists working in GCC countries (66%, n=71) than natives (59%, n=64). In contrast, % correct score between 66.67 to 33.34% was weighed on to natives (n=39, 36%); however, eleven of the GCC understudies (10%) had the highest scores. The Mann-Whitney U test compared the knowledge between Indian pharmacists working abroad and in-house and they were found to be the same (p-value > 0.05).

Table 3: Pharmacists future job preference, when did they hear and information sources about BPS board certification.

Sl. No.	Particulars	Categories n (%)	GCC countries understudies	Indian Understudies	Likelihood Ratio/Chi Square #	
			n (%)			
1.	Pharmacist's Future Destination	India (n=59)	17(8)	42(19)	34.11*	
		Non-India (n=157)	UAE	29		20
			Saudi Arabia	21		5
			Canada	10		13
			Qatar	9		5
			UK	6		8
			Australia	4		7
			US	5		2
			Oman	2		2
			Bahrain	1		1
			Norway	1		1
			Hong Kong	0		1
			Ireland	0		1
			Sweden	1		0
Total	91(41)	66(31)				
Not Decided/ Don't Want to Work		2(1)	0(0)			
Total		216 (100)				
2.	When the participants had heard about BPS Board Certification Program	After my graduation	19(18)	22(20)	23.86 #*	
		Before I join the pharmacy course	3(3)	1(1)		
		During clerkship/internship	2(2)	12(11)		
		During my job practice	64(59)	34(32)		
		During my practice school/ final year	10(9)	22(20)		
		Never	10(9)	17(16)		
		Total	108 (100)	108 (100)		
Total (n=216)						
3	Source of Information	Teacher	8(4)	28(13)	36(17)	
		Preceptors	3(2)	7(3)	10(5)	
		Colleagues	54(25)	36(17)	90(42)	
		Friends	64(30)	44(20)	108(50)	
		Journal articles	9(4.3)	8(3.7)	17(8)	
		Internet	37(17)	35(16)	72(33)	
		None	7(3)	14(7)	21(10)	

*P value <0.01, **P value >0.05

We analyzed the knowledge of pharmacists based on designation, those who heard about BPS, and their work settings (Table 4). It was observed that clinical and hospital pharmacists had more knowledge scores. Those who had heard about BPS certification from their working settings, academic internship, and final years had appreciable knowledge. The Chi-square or Likelihood Ratio test had justified the association

between the work settings, designation, “I heard about board certification” with their cumulative knowledge scores, and they were statistically significant.

Attitude of Indian Pharmacist towards BPS board certification

A pharmacist working in India preferred to grab the BPS certification as their future career plan

Table 4: The knowledge of pharmacists concerning BPS board certification based on their designation and work settings and how they heard about BPS.

Pharmacist's Knowledge on BPS certification	Cumulative Correct Score						Mann-Whitney U
	11-7.3 (100-66.67%)		7.4-3.7 (66.66-33.34%)		3.6-0 (33.33-0%)		
	n (%)	Mean ±SD	n (%)	Mean ±SD	n (%)	Mean ±SD	5672 ^
GCC countries understudies	11(10)	10.15±1.2	26(24)	5.05±1.4	71(66)	1.92±1	
Indian Understudies	5(5)	9.14±1.1	39(36)	5.07±1.5	64(59)	1.69±1.1	
Particulars	Cumulative Knowledge score				Likelihood Ratio / Chi square #		
	Mean ± SD (Knowledge score)	≤2 (Median)	> 2 (Median)				
			n (%)	n (%)			
Designation							
Academician	2.88±2.31		31 (28.4)	25 (23.4)		11.409**	
Clinical Pharmacist	2.89±1.94		21 (19.3)	37 (34.6)			
Hospital Pharmacist	4.41±2.55		24 (22)	29 (27.1)			
Community Pharmacist	4.58±2.92		33 (30.3)	16 (15)			
I heard about Board Certification							
After my graduation	4.35±3.06		22 (20.2)	19 (17.7)		25.209 #*	
Before I join the pharmacy course	3.54±1.99		4 (3.7)	0 (0)			
During clerkship/ internship	4.07±2.16		5 (4.6)	9 (8.4)			
during my job practice	4.62±2.47		46 (42.2)	52 (48.6)			
During my practice school/final year	1.75±1.5		9 (8.3)	23 (21.5)			
Never	1.70±1.49		23 (21.1)	4 (3.7)			
Work settings							
Chain Community Pharmacy	3.51±2.67		13 (11.9)	6 (5.6)		17.587 #*	
College / university	3.38±2.77		36 (33)	34 (31.7)			
Hospital Pharmacy	3±2.81		27 (24.8)	52 (48.6)			
Independent Community pharmacy	2.89±1.94		14 (12.8)	5 (4.7)			
Out Patient Pharmacy attached to Clinic	4.72±2.65		19 (17.4)	10 (9.4)			

*P value <0.01, **P value <0.05, ^P value >0.05

and relocate, considering the patient-centred and honourable designation in Gulf countries. The attitude of pharmacists working in India, UAE, Bahrain, and Oman and those employed in universities and colleges, chain and independent community pharmacies and hospital pharmacies were high (Table 5). The Chi-square or Likelihood Ratio test was employed to associate

pharmacist's attitude with their working settings (*p*-value <0.01) and employed countries (*p*-value < 0.05), and each sample were found to be different.

Motivation factors and Barriers for Pharmacist towards BPS certification

Our study points out that the Indian pharmacists working abroad are highly motivated (*n*=73, 67.6%)

Table 5: The attitude of Indian pharmacist toward BPS board certification.

Demographics (n = 216)	Cumulative Attitude Score		Likelihood Ratio
	≤18 (Median)	> 18 (Median)	
	n (%)	n (%)	
Working Country			
Saudi Arabia	19 (14.8)	24 (27.3)	14.806 **
India	63 (49.2)	45 (51.1)	
United Arab Emirates	39 (30.5)	15 (17)	
Bahrain	3 (2.3)	0 (0)	
Qatar	2 (1.6)	4 (3.4)	
Oman	2 (1.6)	0 (0)	
Work settings			
Chain Community Pharmacy	10 (7.8)	9 (7)	16.379 *
College / university	39 (30.5)	31 (35.2)	
Hospital Pharmacy	57 (44.5)	22 (25)	
Independent Community pharmacy	13 (10.2)	6 (6.8)	
Out Patient Pharmacy attached to Clinic	9 (7)	20 (22.7)	

*P value <0.01, **P value <0.05

to pursue BPS board certification. Most claim career advancement (n=56) to be the dominating factor, and the majority wish to attain better placement (n=46) after being board certified. In India, achieving such credits would not bring a job upgrade in the current scenario; however, many of our samples (n=51) intend to improve their knowledge by utilizing the program.

Indian pharmacists (GCC understudies, n=63, 58.3%; Indian understudies, n=66, 61.1%) were unaware of such board certification, which can be considered a significant barrier. Inadequate guidance (n=45) and financial constraints (n=33) were also quite an issue specified by those residing in India. The motivational factors and barriers are represented in Table 6.

DISCUSSION

The 216 inputs that were received contained the opinions of the Indian population working in Gulf countries and home land toward BPS board certification. The interest in filling out an online questionnaire varied depending upon participant's age and their attitudes and awareness towards the

certification program,¹⁹ The ease of handling Google forms, the desire for attaining knowledge would have attracted considerable responders (<39 years age) among young professionals.²⁰ A large number of male pharmacists are employed in both Gulf countries and India, contributing substantially to the results of the survey.

Respondents included PharmD graduates and clinical pharmacists residing in India. Their preference for migration to Western countries was more than to Gulf countries, which facilitated the high response rate and good knowledge on BPS. On the other hand, few responses obtained from Indian community pharmacists can be strongly related to limited awareness about it.

The study had two significant findings. First, even though the Google form has widespread acceptance, the modest response rate was one of the important observations that depicted the low popularity of BPS certification among Indian pharmacists.²¹ Second, the knowledge of Indian pharmacists toward BPS board certification needs improvement. A similar study conducted in a Saudi Arabian University by Rahaf *et al.* had responders with good knowledge and attitudes.²² However, did not influence the attitude of Indian pharmacists residing in Saudi Arabia. The dissenting attitude on the credential among pharmacists working in outpatient pharmacies attached to clinics can be related to their public under-recognition. Indian layman view pharmacists as those who pack and supply medicines. They are unaware of the benefits that a pharmacist can contribute, such as medication reconciliation and counselling, establishing pharmaceutical care plan, adverse drug reaction reporting, and management and much more in improving therapeutical outcomes in both public and clinical premises.²³ The certification program will facilitate the pharmacists to be confident medicine experts and elevate the bleak perception in society.

Graduate or post graduate degree holders meets the government and private pharmacy oriented job recruitment criteria; but present scenario in most developing countries would not promote further career advancement with additional courses.²⁴ Also, limited specialized posts concerning pharmacies in India had narrowed them to the primary duty of dispensing medicine.²⁵ The hospitals do not recognize certified pharmacists as there are no such requirements specified by India's accreditation board or authority.²⁶ Moreover, the BPS examination and maintenance fee is costly considering the low salary packages offered to Indian pharmacists compared to developed countries. However, Gulf pharmacists can afford better, but

Table 6: The motivational factors and barriers of pharmacist towards BPS board certification.

Whether any motivation received?	Yes		No	
	GCC countries understudies	Indian understudies	GCC countries understudies	Indian understudies
	n (%)			
	73 (67.6)	57 (52.8)	35 (32.4)	51 (47.2)
Total	130 (60.2)		86 (39.8)	
Motivational Factor for Pharmacist	GCC Countries		India	
	n (%)			
Better placement	46(42.6)		44(40.7)	
Promotion	4(3.7)		19(17.6)	
Career Advancement	56(51.9)		57(52.8)	
Financial Reward	10(9.2)		22(20.3)	
Self-satisfaction	41(38)		33(30.5)	
Increased recognition in the field	27(25)		36(33.3)	
Self-improvement in knowledge and skills	49(45.3)		51(47.2)	
To improve patient care	43(39.8)		43(39.8)	
Barriers that affected the Pharmacist	GCC Countries		India	
	n (%)			
No awareness about BPS board certification	63(58.3)		66(61.1)	
No guidance	50(46.3)		45(41.7)	
My organisation does not recognize the value of board certification (Organisational constraints)	11(10.2)		23(21.3)	
Lack of financial support	15(13.9)		33(30.5)	
Time constraints	31(28.7)		15(13.9)	
Can't afford the examination fee	5(4.6)		24(22.2)	
Difficult to maintain board certification	5(4.6)		4(3.7)	
No additional financial benefits	7(6.5)		5(4.6)	
Lack of interest	3(2.8)		4(3.7)	
Lack of confidence to sit for exam	6(5.6)		4(3.7)	
No specialty services are offered at my pharmacy settings	14(13)		16(14.8)	
None	18(16.7)		10(9.2)	

instead, increases in work load has shortened free time, occluding their desire to undertake this career path.²⁷

Large samples of academicians were represented in our Indian subset and their awareness of BPS board certification is low. However, a US based study had good responses from professors, indicating that their fellow candidates were quite familiar with BPS.²⁸⁻²⁹ It was conceivable that those who heard about the certification program during their internship or clerkship had good knowledge of pharmacy study programs. Considering that students rely on their mentors; this process entails a training program for Indian faculty members for generating more mentors who can encourage their graduates to acquire added credentials for career

advancement. Also, government should initiate promotion programs for pushing hospitals to consider certified pharmacists and augment the quality of pharmacy care.³⁰

The introduction of the pharmacy practice rules in 2015 and 2021 led to an inordinate change in the pharmacy profession. The amendment elaborated the pharmacist's roles and responsibilities from dispensing to pharmacy practice, accentuating on patient counselling and providing drug information. This process has constructed dreams among the graduates that the pharmacist can also perform extra task outside of the ordinary ones. Despite personal and professional hindrances, friends and family members working or

studying abroad were provided sources of advanced information in clinical pharmacy, which should be an impetus to learn more and elevate attitudes toward board certification programs.

Specialization in the pharmacy training program would be an asset for pharmacist who are trying to upgrade themselves. As far as pharmacy practice is concerned, patient care is the primary focus. The pharmacist has a significant role and is a pivotal contributor to the enhancement of patients' wellbeing. Continuous clinical updates can achieve this, and the BPS certification program is a key to such a goal. India possesses a huge economy, and the incorporation of clinical pharmacy in every hospital setting would produce better healthcare.³¹ Inadequate consideration from the governing authority and council toward the pharmacy profession and lack of monetary benefits led the Indian pharmacist to migrate to the Middle East, and Western countries and BPS certification would certainly add value to their careers.³² Very recently, the pharmacy council has made it mandatory for the pharmacist to participate in the clinical pharmacy continuing education program as part of license renewal.³³ However, more advanced programs and workshops are required to strengthen community and hospital pharmacists to advanced pharmacy practices. We should insist that the next generation of pharmacists earn BPS certification and utilize the knowledge gained for providing better treatments.³⁴ The urge to share the information with their fellow mates should also be implanted into their minds.

CONCLUSION

The Indian pharmacists demonstrated poor awareness with varying attitudes regarding their preference to carry out BPS board certification programs. Despite motivational factors, multiple components hindered their professional growth in Indian hospitals. Hence, helping pharmacists to gain knowledge through certification programs would advance the profession. Also, the Indian pharmacy authorities and practitioners must have a visionary approach to this professional credential for an expanded context and areas of service.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

ABBREVIATIONS

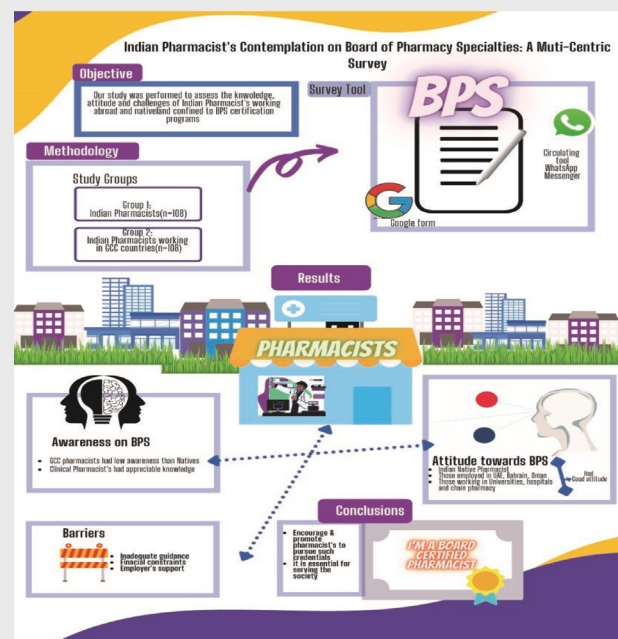
BPS: Board of Pharmacy Specialties; **GCC:** Gulf Cooperation Council; **UAE:** United Arab Emirates; **US:** United States.

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PICTORIAL ABSTRACT



SUMMARY

Board of pharmacy specialties is a golden standard for a pharmacy practitioner. The cross-sectional study depicted low awareness and attitude of Indian pharmacist towards BPS. Inadequate monetary benefit and improper guidance had led many not to prepare for the credential.

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